

MEDIA RELEASE

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NUHS LEADS GLOBAL INITIATIVE FOR PRECISION CARE OF COLORECTAL CANCER PATIENTS WITH LIVER METASTASIS

New guidelines with interdisciplinary expert inputs would change management of patients, enable transplantation for well-selected patients, and guide clinicians in better patient selection to improve survival of colorectal cancer patients worldwide

Singapore — There is now greater hope for colorectal cancer patients with cancer that has spread to their livers and is non-operable. Fit patients who are responding well to their anti-cancer treatment and fulfil a set of selection criteria based on the disease may soon consider the option of a liver transplant for a cure after they have completed their treatment.

Clinicians from the National University Health System (NUHS) in Singapore have led a multicentre initiative that would change how such patients with colorectal liver metastasis are managed and would receive treatment in health institutions. They have formulated a practical patient management algorithm, or a consensus guideline of 44 statements of definitions, that defines the specific patient groups and the management of these patients, as well as the specific tests and classifications that are needed to treat them – from anti-cancer treatment to transplant and downstream care after surgery and transplantation.

The algorithm, which was detailed in a study published online in the scientific journal *Lancet Gastroenterology and Hepatology*¹ in September 2021, was developed with the contributions of 27 leading experts in the fields of hepatobiliary surgery, colorectal oncology, liver transplantation, hepatology and bioethics, from 11 territories across Asia, the Americas and Europe.

Colorectal cancer is one of the most common cancers in the world, with over 50 per cent of patients developing metastases to the liver. Where the liver is operable (i.e. can be treated by means of a surgical operation), a combination of surgery and chemotherapy could provide an effective cure for some patients. However, a significant number of these patients would have liver spread that is too extensive and cannot be operated on, even if they are still physically strong and fit. Conventionally, these patients would have no further options for cure.

Lead author of the study, Dr Glenn Bonney, Consultant, Division of Hepatobiliary & Pancreatic Surgery, Department of Surgery, National University Hospital (NUH) said: “We should not just write off colon cancer patients with cancer that has spread to their livers. Traditionally, there was fear of transplanting such patients – their immune system has to be suppressed to enable the surgery and as a result the cancer may come back very aggressively. This algorithm summarises the best evidence we have to date and for the first time puts forward a global consensus on key tests, timelines, ethical principles and outcome measures needed for this

¹ [https://www.thelancet.com/journals/langas/article/PIIS2468-1253\(21\)00219-3/fulltext](https://www.thelancet.com/journals/langas/article/PIIS2468-1253(21)00219-3/fulltext)

very severe but common disease that has been incurable in the past. Previously, patients were given chemotherapy to help prolong life, but not necessarily a chance for cure. However, using these guidelines that we have published, in well-selected patients, we could potentially improve survival following liver transplantation. Patients also benefit from a better quality of life.”

“Our study is an important paper for transplant oncology. We took into account all the successes, failures and learning points of previous studies over the past three decades to clearly define patients who could potentially be transplanted by following the simple steps that are laid in our algorithm. The biological behaviour of the cancer to therapy is a crucial factor for the evaluation. The algorithm also defines how patients must be treated with multidisciplinary management. If a patient were to respond well to treatment, and their cancer responds well (by specific criteria), they may be suitable to undergo living donor transplant. Key to the success of this multi-faceted approach is a strong multi-disciplinary team involving pathologists, radiologists, surgeons, hepatologists and oncologists such as that in NUH,” added Dr Bonney who is also a Consultant at the National University Centre for Organ Transplantation (NUCOT) at NUH and the Division of Surgical Oncology, National University Cancer Institute, Singapore (NCIS).

Co-author of the study, Dr Chee Cheng Ean, Senior Consultant at the Department of Haematology-Oncology at NCIS, said: “This is an example of precision care in oncology whereby the consensus guidelines in the paper can be used to identify a selected group of patients with metastatic colorectal cancer who may benefit from a liver transplant. Liver transplant in this case should be seen as complementing other forms of modern cancer treatments to improve survival in this disease.”

Another Singapore-based author of the study, Dr Mark Muthiah, Consultant at the Division of Gastroenterology and Hepatology at the National University Hospital, said: “The biggest risk to these patients is the risk of the cancer recurring after the transplant. The clear algorithm determined by the consensus group helps doctors select patients who can avoid this.”

Next steps

Based on these clearly defined guidelines and the best evidence to date, the authors of this study along with other members of the NCIS and NUCOT team have opened an international collaboration in living donor transplantation

Asian transplant centres with good outcomes in living donor liver transplantation, such as NUCOT at NUH, have an advantage in that the transplant can be planned in line with the window of opportunity in the treatment of the patient. Living donor transplantation has the advantage that the transplant can be planned in line with the patient’s chemotherapy treatment and regimes unlike deceased donor transplantation which is often an emergency based on the availability of an organ. In the West, the patient would be put on a waiting list and this may result in a loss of this treatment window. Therefore, a number of Asian centres that have expertise in cancer as well as transplantation are keen to participate. The protocol for management of these patients has been defined by the team at NUH.

Importantly, on a molecular level, further understanding of this disease is still necessary and worldwide collaboration between the authors of this paper are currently underway. Capitalising on Singapore’s eco-system of world class research, the underpinnings of some of this work are currently being led and finalised by the team.

Multidisciplinary expertise required in transplant oncology

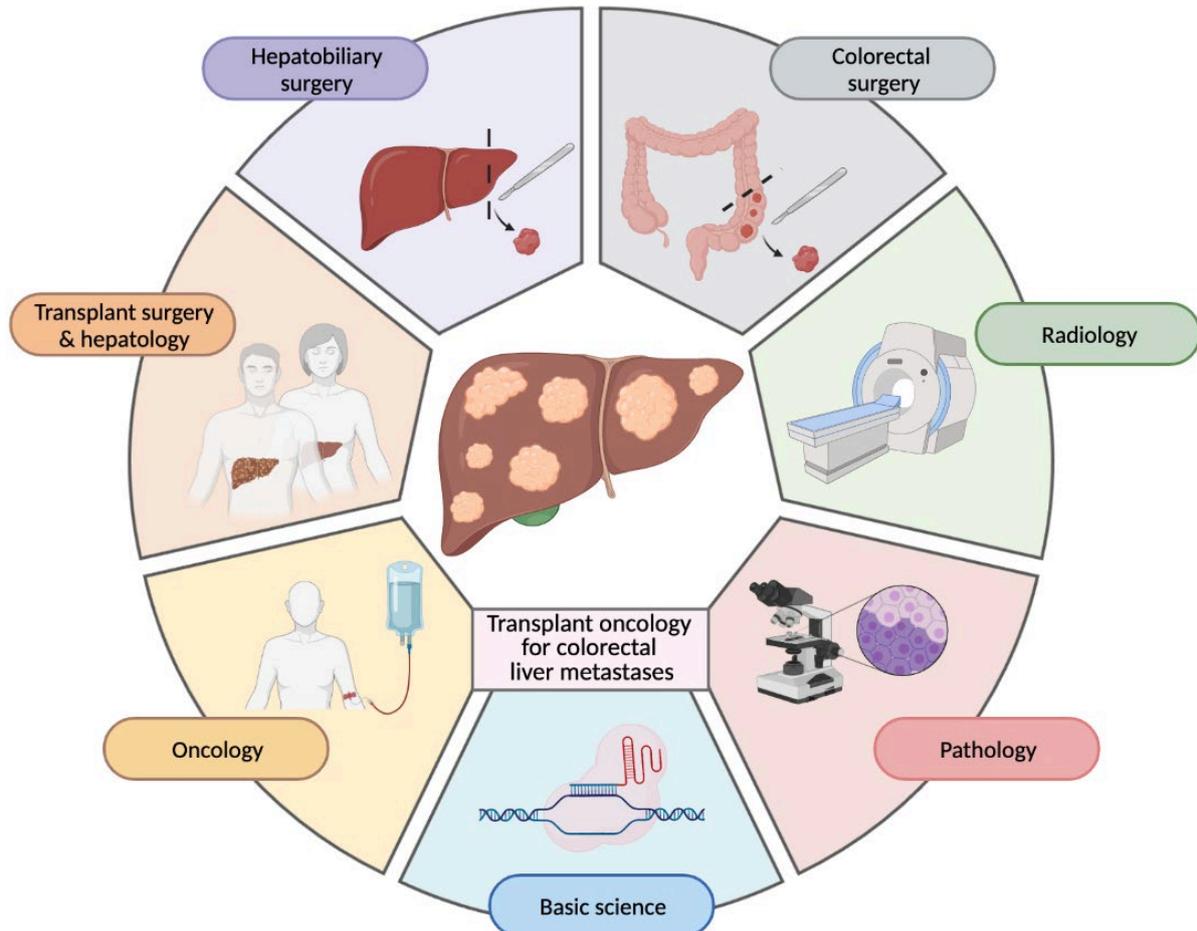


Image credit: National University Health System

Chinese Glossary

National University Health System (NUHS)	国立大学医学组织 (国大医学组织)
National University Hospital (NUH)	新加坡国立大学医院 (国大医院)
National University Cancer Institute, Singapore (NCIS)	新加坡国立大学癌症中心 (国大癌症中心)
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About the National University Health System (NUHS)

The National University Health System (NUHS) aims to transform how illness is prevented and managed by discovering causes of disease, development of more effective treatments through collaborative multidisciplinary research and clinical trials, and creation of better technologies and care delivery systems in partnership with others who share the same values and vision.

Institutions in the NUHS Group include the National University Hospital, Ng Teng Fong General Hospital, Jurong Community Hospital and Alexandra Hospital; three National Specialty Centres - National University Cancer Institute, Singapore (NCIS), National University Heart Centre, Singapore (NUHCS) and National University Centre for Oral Health, Singapore (NUCOHS); the National University Polyclinics (NUP); Jurong Medical Centre; and three NUS health sciences schools – NUS Yong Loo Lin School of Medicine (including the Alice Lee Centre for Nursing Studies), NUS Faculty of Dentistry and NUS Saw Swee Hock School of Public Health.



With member institutions under a common governance structure, NUHS creates synergies for the advancement of health by integrating patient care, health science education and biomedical research.

As a Regional Health System, NUHS works closely with health and social care partners across Singapore to develop and implement programmes that contribute to a healthy and engaged population in the Western part of Singapore.

For more information, please visit <http://www.nuhs.edu.sg>.

About the National University Hospital (NUH)

The National University Hospital is a tertiary hospital and major referral centre with over 50 medical, surgical and dental specialties, offering a comprehensive suite of specialist care for adults, women and children. It is the only public hospital in Singapore to offer a paediatric kidney and liver transplant programme, in addition to kidney, liver and pancreas transplantation for adults.

The hospital was opened on 24 June 1985 as Singapore's first restructured hospital. Each year, the Hospital attends to more than one million patients.

As an academic health institution, patient safety and good clinical outcomes are the focus of the Hospital. It plays a key role in the training of doctors, nurses, allied health and other healthcare professionals. Translational research is pivotal in the Hospital's three-pronged focus, and paves the way for new cures and treatment.

A member of the National University Health System, it is the principal teaching hospital of the NUS Yong Loo Lin School of Medicine and the NUS Faculty of Dentistry.

About National University Cancer Institute, Singapore (NCIS)

The National University Cancer Institute, Singapore (NCIS) offers a broad spectrum of cancer care and management covering both paediatric and adult cancers, with expertise in prevention, screening, diagnosis, treatment, rehabilitation and palliative care. The Institute's strength lies in the multi-disciplinary approach taken to develop a comprehensive and personalised plan for each cancer patient and his or her family. Our award-winning clinician-scientists and clinician-investigators conduct translational research and clinical trials, providing patients with access to evidence-based cancer diagnostics, technology and therapies. For more information about NCIS, please visit www.ncis.com.sg.