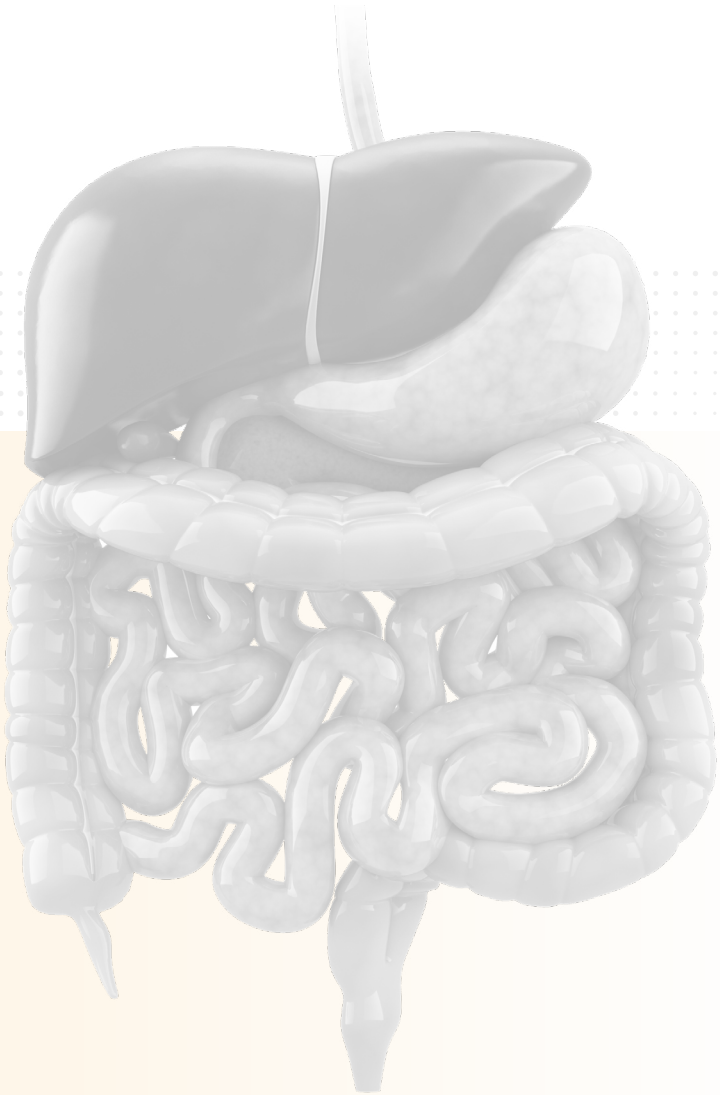
IHH Healthcare

GENERAL SURGERY

Cytoreductive Surgery and Hyperthermic Intraperitoneal Chemotherapy (CRS-HIPEC)



KEY PROCEDURE HIGHLIGHTS

1. Surgery combined with HIPEC has been clinically shown to **extend overall survival** [1,2,4,5,6] **and improve quality of life.** [3,7,8]

2. Heated chemotherapy drugs are **more effective at penetrating and killing malignant cells.** [8]

3. Direct administration of chemotherapy into abdomen **minimizes chemotherapy-related side effects** caused by systemic approach. [8]

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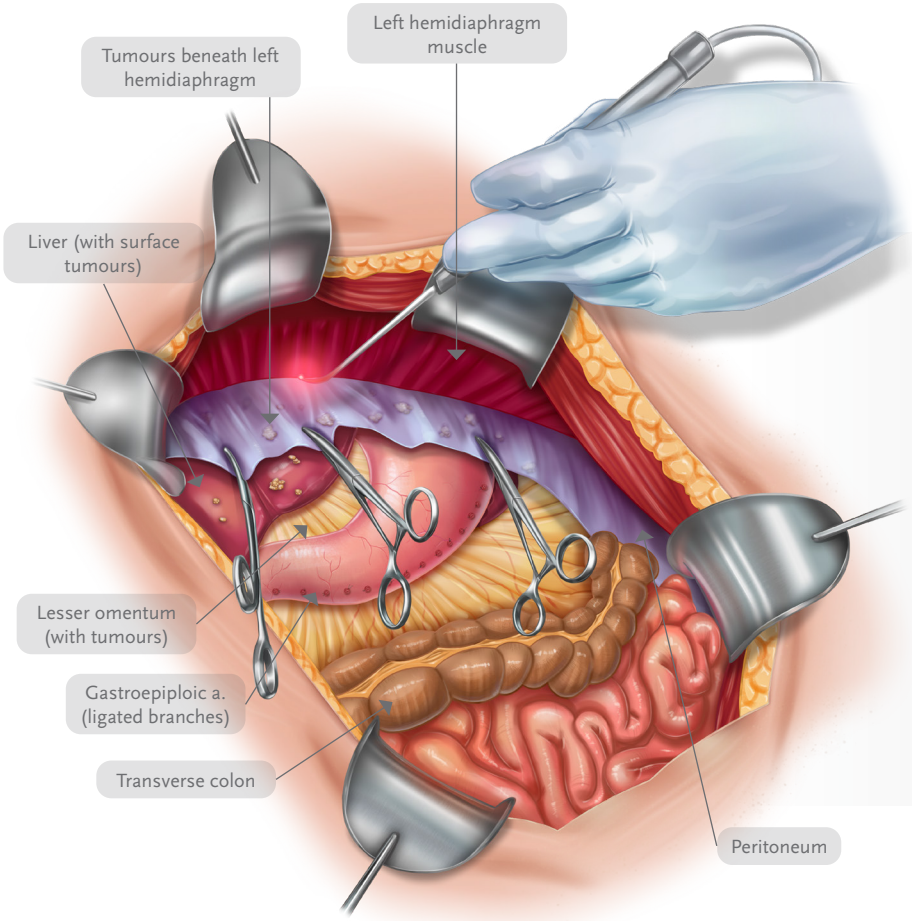
CYTOREDUCTIVE SURGERY WITH HYPERTHERMIC INTRAPERITONEAL CHEMOTHERAPY

CRS-HIPEC is an advanced two-part treatment modality used to treat Peritoneal Surface Malignancies (PSM) - tumours that have originated in or metastasized to the peritoneum.



STEP 1

Cytoreductive Surgery (CRS) for Intra-Abdominal Malignancies

CRS and peritonectomy is the radical resection of tumours with the aim of removing all macroscopic peritoneal disease. [2,8]

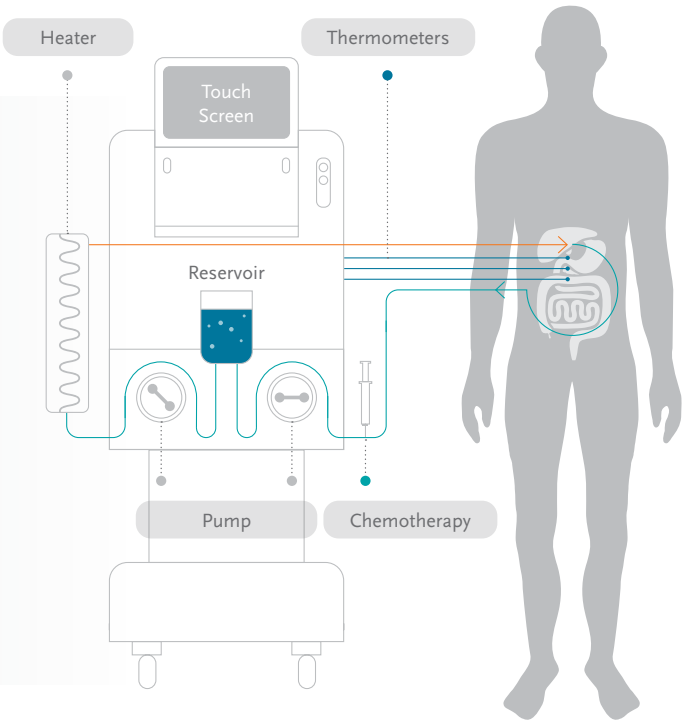
Resection of involved visceral organs is typically performed first, followed by the removal of sections of involved peritoneum (peritonectomy). [8]

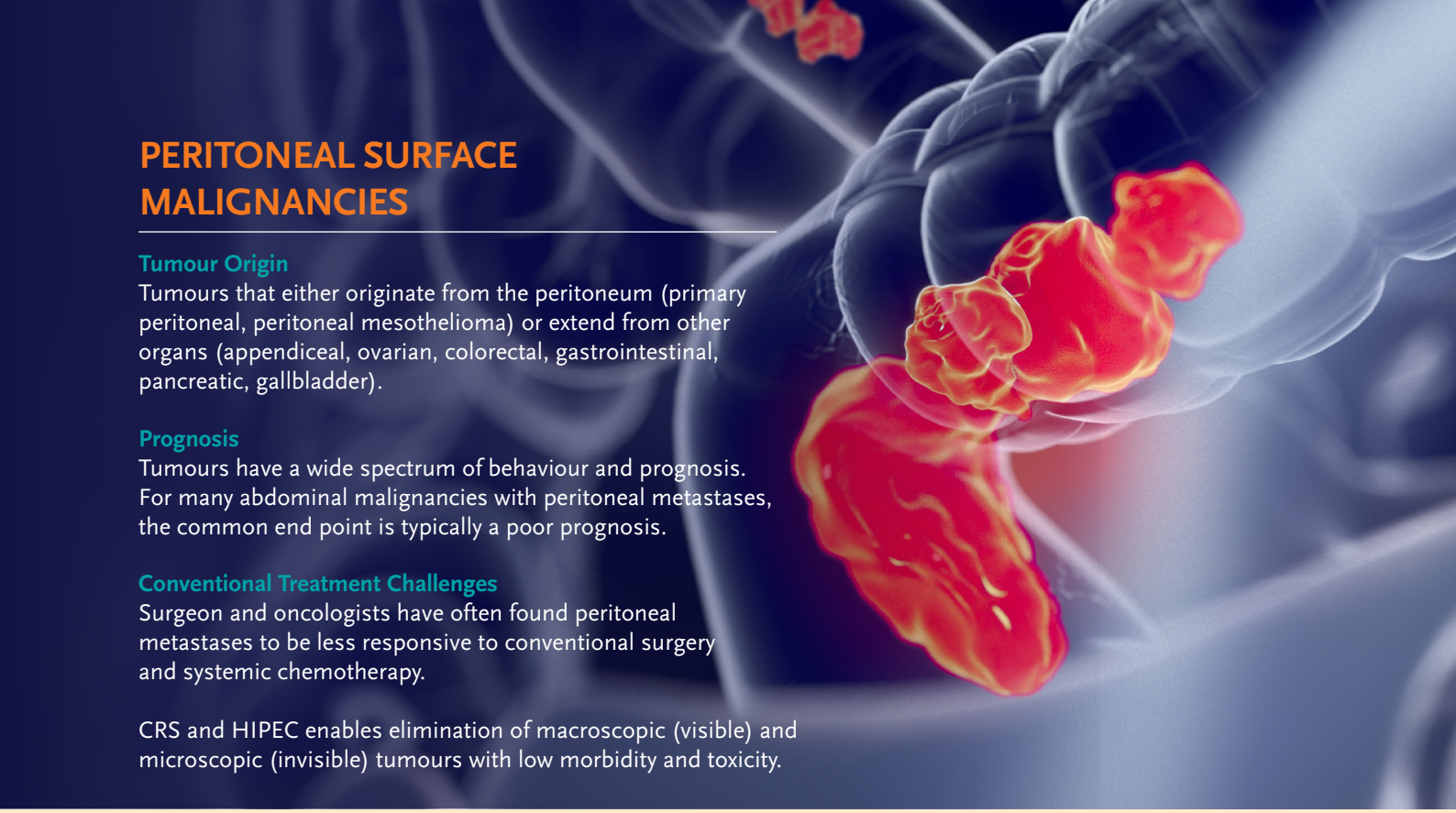
STEP 2

Application of Hyperthermic Intraperitoneal Chemotherapy (HIPEC) Directly into Patient's Abdominal Cavity

HIPEC targets any microscopic disease and is able to penetrate up to 3mm. [2,8]

Owing to the peritoneal-plasma barrier, a higher dose of chemotherapy can be delivered with less systemic toxicity. The high temperature increases drug penetration and provides a synergistic effect with the intraperitoneal chemotherapy. [8]





PERITONEAL SURFACE MALIGNANCIES

Tumour Origin
Tumours that either originate from the peritoneum (primary peritoneal, peritoneal mesothelioma) or extend from other organs (appendiceal, ovarian, colorectal, gastrointestinal, pancreatic, gallbladder).

Prognosis
Tumours have a wide spectrum of behaviour and prognosis. For many abdominal malignancies with peritoneal metastases, the common end point is typically a poor prognosis.

Conventional Treatment Challenges
Surgeon and oncologists have often found peritoneal metastases to be less responsive to conventional surgery and systemic chemotherapy.

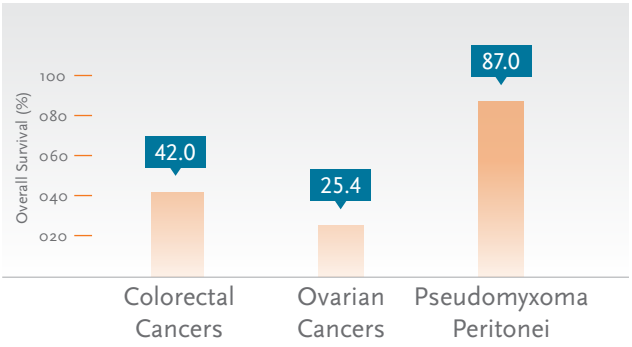
CRS and HIPEC enables elimination of macroscopic (visible) and microscopic (invisible) tumours with low morbidity and toxicity.

BENEFITS OF CRS-HIPEC OVER CONVENTIONAL TREATMENT

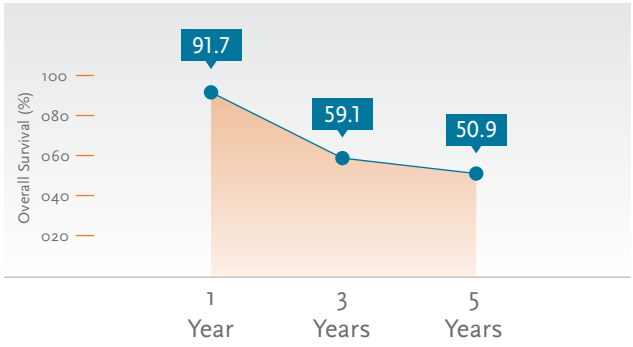
- Effective in **extending long-term survival** [1,2,4,5,6] of patients with previously untreatable tumours. With the two-pronged treatment approach, surgery (CRS) is combined with heated chemotherapy (HIPEC) administered directly to affected area.[8]
- **Even distribution** of higher concentrations of chemotherapy used in HIPEC in the abdomen and hard-to-reach areas.
- Heat used during HIPEC enhances the penetration of chemotherapeutic agents into tissues and **increases effectiveness** [8] in killing cancer cells as conventional method tends to penetrate peritoneal lining more poorly.
- Minimizes the rest of the body's exposure to the chemotherapeutic agents, **thus avoiding undesirable side effects of conventional chemotherapy**. [8]

OVERALL SURVIVAL (OS) BENEFIT

5-year Median OS% of Patients with PSM of Various Primary Tumour Origins in USA and Europe [4,8]
Post-operative mortality rate: Up to 3.5%



OS% of Patients who underwent CRS-HIPEC in Singapore [1]
Post-operative mortality rate: Less than 1.0% [9]



PATIENT SELECTION

Suitable candidates for CRS and HIPEC should be medically fit for surgery and anaesthesia and have either :

- Primary tumours arising from the peritoneum.
- Primary tumours in the appendix, colon, ovary and stomach, showing no evidence of disease in organs outside the abdominal cavity.

LENGTH OF STAY

7 to 10 Days
including average of
1 day in HDU/ICU

ABOUT THE SURGEON

Dr Melissa Teo graduated from the National University of Singapore and completed her general surgical training here before undertaking two Fellowships in Complex Surgical Oncology and Colorectal Surgery in Toronto. She returned as Head of the Division of Surgical Oncology at the National Cancer Centre Singapore before private practice.

Dr Teo remains one of few accredited surgical oncologists in the country and region and is frequently consulted for her expertise in the management of gastrointestinal cancers, sarcomas and melanomas and peritoneal disease. She has a vast experience in CRS-HIPEC and is the current President of the Asian Peritoneal Surface Malignancy Group.

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