There was also a significant linear relationship between female NCCN panel members and research authors (r=0·67, p=0·0006) across the various guidelines (figure). Cancers usually specific to women (breast, uterine, and ovarian cancers) had both the highest proportion of female panel members and authorship. Genitourinary cancers (with the exception of prostate cancer) tended to have fewer women on guideline panels when compared with the proportion of female authors. These are historically male-dominated specialties in the USA. B-cell lymphomas and myeloma had notably more women on their respective panels compared with the extent of female authorship.

Thus, despite some imbalances within disease sites, the composition of female NCCN panel members overall was consistent with that of a large sample of influential female cancer researchers. Across guidelines, authorship was positively correlated with the proportion of women selected as panel members. This finding suggests that as more women surmount barriers to achieve research success in academia, the proportion of women in influential leadership roles can increase accordingly, as exemplified in the female-specific subspecialties.

It is encouraging that selection of guideline panel members for the NCCN, a noteworthy resource in oncology practice in the USA, seems independent of gender bias. However, these findings should not detract from the known underlying gender gaps in research achievement among advancing academic faculty. The proportion of female NCCN panelists (29%) is less than the proportion of female academic oncologists overall (40%). Given that nearly 15 years in academic medicine are required before promotion to senior positions, NCCN panel members today would probably represent the proportion of female academic oncologists in an earlier generation. For example, in 2005, women only comprised 30% of academic haematology-oncology faculty.[1] Previous data suggest that board membership for prominent oncology societies in the USA and Europe does fall slightly short of this goal, with women comprising roughly 25% of board members in 2016.[2]

Our results indicate that the gender composition of NCCN cancer experts appropriately reflects the pool of successful researchers. As more women enter the academic oncology community, we expect that the percentage of women in senior leadership positions will continue to increase. However, this outcome depends primarily on efforts to bolster the academic experience and outcomes for the current cohort of female junior faculty members to ensure their research potential is realised.

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Gastric cancer surgery: the importance of technique and not only the extent of lymph node dissection

Radical gastrectomy with extended lymph node dissection is standard for gastric cancer.[1,2] The extent of lymph node dissection is defined as D1 for the perigastric area, whereas D2 lymph node dissection comprises tissue surrounding the next level of lymphatic vessels, including the hepatic artery proper, common


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hepatic artery, splenic vessels, and splenic hilum.[1] Radical D2-lymphadenectomy for advanced gastric cancer had previously been accepted as the surgical standard in Japan and Korea, and the generalisability of this technique was confirmed by a Dutch trial.[3]

Besides evidence for the extent of standardised lymphadenectomy, surgeons have been concerned about potential spillage of cancer cells from the lymphatic vessels into the peritoneal cavity during surgery, which could lead to metastatic disease after surgery, especially in patients with advanced-stage cancer. If lymphatic tissue contains cancer cells, then any fraction, tear, or unsealed cutting is a potential cause of cancer cell spillage into the abdominal cavity and peritoneal seeding.

The clinical question regarding the scale and effects of cancer cell spillage during gastric cancer surgery, and its dependency on the surgical technique used, is challenging to address in a clinical trial because allocation of some patients to a control group with unsealed cutting, and assumingly higher cancer cell spillage, appears ethically inappropriate. A prospective study[4] enrolled 38 patients with gastric cancer who had gastrectomy, with sealing of lymphatic and vascular pedicles by clips during operation.[4] Once outside the patient, resected specimens were rinsed with saline solution before and after opening the clips, to simulate ex-vivo sealed dissection versus sharp unsealed dissection, and tumour cells were measured in the rinse. The ex-vivo results suggested that even in stage I tumours simulated sharp dissection of lymphatic vessels resulted in higher release of cancer cells from the lumen than did sealed dissection. These results emphasised the importance of lymphatic and vascular sealing not only in vessels that remain in the patient, but also in the specimen, to avoid cancer cell spillage during surgery into the peritoneal cavity. This prospective study also measured intraluminal cancer cell burden, which increases during surgery because of inevitable mechanical stress, suggesting that any unprotected opening of the stomach for reasons of reconstruction can also cause cancer cell spillage into the peritoneum. Therefore in gastric cancer surgery, not only the extent of lymph node dissection (D2 or D1), but also the technique by which it is done (avoidance of cell spillage from the lymphatics and lumen) is of importance.

How can surgeons technically avoid intraoperative cancer cell spillage? Gentle handling of lymphatic tissue and omission of stomach grasping around the tumour site are common techniques. These principles are most challenging to adopt in laparoscopic gastrectomy, in which small and mostly metal laparoscopic instruments can easily break the tissue and release cancer cells. Stomach traction can be achieved by techniques to lift the stomach gently with gauzes, without seizing or clamping.[5] The safety of laparoscopic gastrectomy for advanced gastric cancer is under investigation,[6] but these considerations regarding organ handling during surgery might play an important part in future trials and change the way surgical procedures are done. For laparoscopic lymph node dissection, an instrument for dissection (energy device) is indispensable to achieve tissue sealing while cutting. Different energy devices use ultrasonic technologies, bipolar technologies, or both. In these energy devices, the temperature of the blades increases to approximately 80°C in bipolar devices and more than 200°C in ultrasonic devices. A randomised trial (NCT03356626) of laparoscopic distal gastrectomy is ongoing to compare these energy devices with regard to patient outcomes and efficacy of lymphatic sealing. Additionally, intraoperative visualisation of lymphatic channels by near infra-red camera with indocyanine green fluorescence can provide a more effective and safe method of lymph node dissection.[7] Other efforts are focused on cancer imaging technology to guide the extent of surgery using cancer-specific tracers. This technology would allow surgeons to intraoperatively visualise areas of metastatic nodes, which might lead to a more precise and appropriate dissection of locally spread disease.

Given that cancer cell spillage into the peritoneal cavity can occur during tumour dissection, even when precautions to minimise spillage are taken, the randomised EXPEL trial (NCT02140034) is investigating whether extensive peritoneal lavage after surgery (10 L of saline solution) could improve peritoneal recurrence outcomes compared with the standard protocol (2 L).[8]

In gastric cancer surgery, the use of energy devices to seal lymphatic vessels during dissection to avoid spillage of cancer cells into the peritoneal cavity seems advisable. Additionally, traction for field exposure should be

done without mechanical stress of the tumour site and avoiding tissue rupture, image-guided visualisation of lymphatic vessels can guide surgeons through a safe dissection, and conscientious peritoneal lavage after surgery might help to reduce cancer cell spillage and peritoneal disease burden. For organ reconstructions, immediate suction evacuation of any stomach lumen content after excision, and protection of the operation field by gauze can avoid cancer cell spillage into the peritoneum. All these preventive measures can help to reduce or avoid cancer cell spillage during gastric cancer surgery to achieve the best possible patient outcome by avoiding cancer recurrence.

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Towards a standard of care in oncology for transgender patients

Transgender is a term that broadly encompasses anyone whose gender identity or expression differs from their assigned sex at birth. Recent estimates suggest that 1·4 million individuals in the USA and 25 million individuals worldwide identify as transgender, with increasing prevalence of transgender patients with cancer as the transgender population grows and ages.[1–3] Efforts to improve health care in this population have focused on improving and standardising transition-related care, or on the medical process through which an individual modifies their body to align with their gender identity. However, the medical needs of the transgender community extend far beyond gender-confirming care (eg, services that help confirm a patient's gender), and existing data regarding the outcomes and experiences of transgender patients with cancer suggest that improvements are needed throughout the cancer care spectrum.[4–6]

We believe the oncology community has a duty to transgender patients to provide high quality, equitable treatment that is respectful of their needs and optimises their experiences and outcomes. This approach includes considering how the oncology community uses a binary sex-based approach to cancer (male patients get prostate cancer; female patients get ovarian cancer); a lack of attention to how cancer surgery could affect a patient's sense of gender identity; a perception that clinical settings, programmes, and support groups are non-inclusive; and barriers to preventive screening that lead to patients presenting with later stage disease.[4–6] To the best of our knowledge, there are no best practices regarding care for a transgender patient with cancer. Herein, we proffer five suggestions to begin a discourse aimed at developing standards for quality care for these patients.


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First, individuals who interact with patients with cancer including, but not limited to, physicians, nurses, and administrative staff, should receive formal education on transgender patients' health needs, including relevant aspects of gender dysphoria and standards of care created by stakeholder organisations, such as the World Professional Association for