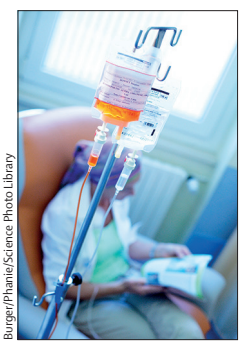
Global chemotherapy demands: a prelude to equal access



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Chemotherapy is a crucial component of cancer care. In *The Lancet Oncology*, Brooke Wilson and colleagues[1] report chemotherapy demands and physician workforce requirements for 2018 and projections for 2040. The authors used population-based cancer data for patient characteristics and stage distribution in Australia and the USA, together with existing guidelines for cancer management to define indications for chemotherapy, to compute site-specific chemotherapy utilisation estimates, which were subsequently mapped to GLOBOCAN estimates of new cancer cases for 2018 and predictions for 2040. The authors estimated that 9 782 783 (57%) of 17 036 902 patients with cancer worldwide required first-line chemotherapy in 2018.

The number of cancer cases is expected to rise globally because of demographic changes and increases in the prevalence of lifestyle-related risk factors. Wilson and colleagues estimated that the demand for chemotherapy worldwide would grow by 53% by 2040. The authors made several practical assumptions for their estimates of the number of patients who might need chemotherapy, including that data for the high-income countries USA and Australia would apply worldwide. More than 55% of cases of colorectal cancer, for example, occur in low-income and middle-income countries, and more than half of all patients with this disease require chemotherapy. Although incidence has stabilised in many high-income countries (beginning as early as the 1980s), it continues to rise in many low-income and middle-income coutries.[2] Thus, Wilson and colleagues' estimates are probably an underestimate of the true number of people with colorectal cancer who will require chemotherapy in the future. Conversely, the authors' approach of basing theoretical levels of chemotherapy needs on treatment guidelines might have resulted in overestimation of patients' needs. Despite these shortcomings, Wilson and colleagues' data probably remain the best available estimates. All in all, this study will help to further guide policy makers and stakeholders in priority settings involved in setting up health infrastructure and strengthening and educating the future workforce. To leverage the full potential of this type of global prediction studies, it would be useful to estimate costs of and strategies for scaling up health services for optimal patient management, not only for chemotherapy, but also throughout the full continuum of cancer care.

It is important to bear in mind that the chemotherapy utilisation reported by Wilson and colleagues has been generated on the basis of the characteristics of patients in high-income countries, which differ greatly from those of patients in low-income settings. In a population-based study[3] of patients with breast cancer in 12 sub-Saharan African countries, 555 (65%) of 856 patients were diagnosed with stages III or IV disease; the corresponding proportion in the USA was 36%.[4] Chemotherapy is key in the treatment of metastatic cancers.

Systematic collection of data for patient characteristics (stage, treatments received, and comorbidities at diagnosis) at a population level remains highly important in both high-income and low-income and middle-income countries. Because such data collection has mainly been done through linkages (to medical records or insurance reimbursement databases) or the creation of specialised clinical cancer registries, low-income and middle-income countries face particular challenges in attempting to improve data coverage and quality because of a lack of infrastructure and human and financial resources. Advances in digital health and electronic health record systems are a possible way to overcome shortfalls in traditional data collection in these countries.

Finally, the availability of estimates of global chemotherapy demands and the global cancer burden should not be interpreted to mean that abundant evidence is available or that sustained data collection is not important or necessary.[5] Data from low-income and middle-income countries in particular remain scarce, and corresponding estimates are therefore based on scant and approximative information. So far, only roughly a quarter of the world's population is covered by functioning population-based cancer registries, with lower coverage in some continents, including Africa (13% of the total population).[6] Without active and sustained cancer surveillance systems providing a more accurate picture of the actual burden in each country and region, accurate estimation of cancer care will remain a challenge, and estimates will have to be interpreted with a high degree of caution.

Wilson and colleagues' work will help to ensure more equal access to cancer care by providing global estimates

of chemotherapy demands. A resourced-stratified list of essential medical devices and drugs is now available,[7] and international commitment to reducing premature mortality from cancer is growing. However, engagement and long-term commitment from all stakeholders remain key to making a step change. Nonetheless, primary prevention should be an essential part of this action and should be a top priority in countries' response to cancer, in close conjunction with early detection, screening, and treatment.

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We declare no competing interests.

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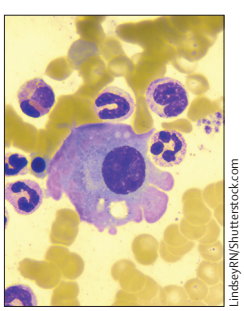
Redefining the treatment paradigm for multiple myeloma



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A shift in the treatment paradigm for multiple myeloma has taken place in recent years. The upfront strategy in transplant-eligible patients with multiple myeloma now typically includes a three-drug induction combining a proteasome inhibitor (eg, bortezomib) and an immunomodulatory drug, followed by autologous stem-cell transplantation and lenalidomide maintenance.[1] In the non-transplant setting, continuous lenalidomide plus dexamethasone is a standard regimen and is the backbone of several three-drug combinations assessed in clinical trials (in combination with bortezomib or daratumumab).[2,3] Lenalidomide is usually administered until progression; thus, newly diagnosed patients with multiple myeloma who are exposed to lenalidomide at first-line will become refractory to the drug at first relapse. To date, no data are available for the efficacy of lenalidomide-based combinations in lenalidomide-refractory patients. The current recommendations for treatment at relapse need to be redefined.

Pomalidomide—a third-generation immunomodulatory drug that is more potent than lenalidomide—has been approved in combination with dexamethasone for patients who relapsed on lenalidomide and a proteasome inhibitor. Based on current data in heavily pretreated patients,[4] only a third of patients receiving pomalidomide and dexamethasone ultimately achieve an objective response. Many attempts to build on the pomalidomide and dexamethasone combination have been made, with several early-phase studies focusing on lenalidomide-exposed or lenalidomide-refractory patients, with promising preliminary activity data.

In *The Lancet Oncology*, Paul Richardson and colleagues report findings of the OPTIMISMM trial,[5] the first randomised phase 3 trial to investigate pomalidomide early in the course of multiple myeloma in lenalidomide-pretreated and lenalidomide-refractory patients. Their findings showed that progression-free survival was significantly improved with a three-drug combination of pomalidomide, bortezomib, and dexamethasone compared with a two-drug regimen of bortezomib and dexamethasone (median 11·20 months [95% CI 9·66–13·73] *vs* 7·10 months [5·88–8·48]; hazard ratio 0·61, 95% CI 0·49–0·77; p<0·0001). Safety of the three-drug combination accorded with known profiles of the individual drugs.

Precocious use of pomalidomide—ideally at first relapse when the disease is more sensitive and the bone marrow microenvironment less compromised—improves progression-free survival compared with use in later treatment. Thus, the combination of pomalidomide, bortezomib, and dexamethasone stands out as an efficacious, safe, and potentially cheap (the bortezomib patent is soon to expire) option at first relapse. Importantly, subgroups analyses suggested that the three-drug combination was effective also in patients with high-risk