It has always been a challenge to have an equal representation of women in an engineering workplace, but this hasn’t been the case at the Children’s Hospital of Eastern Ontario–Ottawa Children’s Treatment Centre (CHEO-OCTC), where you’ll find many women working in engineering. They are found in various roles covering a wide spectrum of responsibilities in a university teaching hospital environment. Inspired by Engineers Canada’s goal of raising the percentage of newly licensed engineers who are women to 30 per cent by the year 2030—otherwise known as “30 by 30”—CHEO-OCTC is well-positioned to have 30 per cent of its female engineering graduates licensed by 2030.

Over the past 20 years, there has been a small but noticeable increase in females graduating in engineering from Canadian colleges and universities, although the uptake rate of female graduates varies from industry to industry. In CHEO-OCTC’s clinical engineering department, led by Kim Greenwood, P.Eng., there is close to 30 per cent representation of women working in different aspects of engineering, and currently seven per cent are P.Engs. Back in the 1990s, Greenwood recognized there was a void in females holding engineering or technology positions in this workplace, so he made a conscious effort to change this situation.

“Early in my career, in the 1980s, I realized that many organizations systematically discriminated against the hiring of females and people of colour,” says Greenwood. “This really bothered me. When given the opportunity to hire, I made sure the process was fair—the best person for the job was hired regardless of who they are. Our organization has benefited from a diverse workplace.”

LEADING ROLES
The current clinical engineering department at CHEO-OCTC of 32 staff has nine positions held by women. Among them, five are working as biomedical engineering technologists. Their role is to provide technology support not only to CHEO-OCTC’s 168 beds but to 18 other independent healthcare facilities at 23 sites, totaling more than 2100 patient beds.

Currently, there are three women—Rachel Zhang, EIT, Parisa Bahrami, P.Eng., and Marie-Ange Janvier, PhD, P.Eng.—who are leading the
The implementation of all-new healthcare technology at CHEO-OCTC, which regularly involves large diverse interdisciplinary teams. Projects range from managing large and complex magnetic resonance imaging equipment to infusion pumps; performing the technology-planning process; and the research and evaluation of available equipment that matches the clinical, technical and financial needs of the hospital. Clinical engineers also coordinate clinical assessments by doing appropriate validation testing with stakeholders (e.g., nurses and physicians), and once the equipment is selected they plan the integration of medical equipment into the hospital.

Beyond the clinical engineers and biomedical engineering technologist positions at CHEO-OCTC, female engineers also work in the facilities management, information system and information services departments of the hospital. One female engineer, Gaetanne Heggie, P.Eng., extends her clinical engineering skills to the facility management and planning department. Her work involves planning, organizing and coordinating diverse projects, which vary from infrastructure renewal to operation and maintenance. She also coordinates policy development. “I believe my engineering background has helped me develop a systematic approach to my work,” says Heggie. “Coupling my technical knowledge with my clinical experience allows me to better understand the needs of the hospital and integrate people with the space and the infrastructure.”

In the information system department, Abiola Ogungbemile, EIT, works as a business systems analyst. Her responsibilities entail the management of daily operations and maintenance of the laboratory information system (LIS). This involves ensuring connectivity between laboratory instruments/equipment and the LIS; interfacing with other LIS and integrating with the electronic medical record. The core of this role is supporting user experience to navigate the LIS by ensuring the tools necessary for operation are available and processes are streamlined. “My engineering background provides the guiding principles to my approach towards system requirements gathering, building, optimization and testing while keeping patient safety at the forefront of these decisions,” explains Ogungbemile.

Catherine Dulude, P.Eng., who has an industrial engineering degree from the University of Toronto and a master of design from Carleton University, is a human-factors engineer in CHEO-OCTC’s information services department. She works with clinicians and interdisciplinary teams across departments to identify user and workflow requirements, environmental and technical capabilities and limitations and design solutions that will support future workflows. Most recently, she led the assessment and redesign of clinical spaces, including selection and placement of computer hardware and ergonomic accessories, as the hospital transitioned from paper to an integrated electronic medical record (EMR) system. “My engineering training and experience help me identify which methods best suit a project’s desired outcome and navigate sometimes conflicting human, technical and organizational factors,” says Dulude. “In preparation for the transition from hybrid electronic/paper charting to an integrated EMR, we took a human-centred approach and used simulation with clinical end-users and anticipated future electronic workflows to test identified hardware options and space design solutions.”

The information services department is led by a graduate of the electrical engineering program at Queens University, Mari Teitelbaum, who began her career in the high-tech sector. She shifted into healthcare by completing a master of health administration at the University of Ottawa. She is now the chief information officer (CIO) and vice president of provincial programs at CHEO-OCTC. In her CIO role, Teitelbaum is responsible for the software applications across the hospital, from the leading-edge electronic patient record system to the finance and payroll systems. She supports a staff of about 50 people, who ensure software systems meet the needs of users and remain current and stable.

CHEO-OCTC is leading the way in showing that it is possible to create more gender balance in the engineering workplace without having to impose rigid hiring practices. As a place of employment, it is well on its way to reach its own 30 by 30 goal and increase the representation of women in engineering disciplines as more women continue to enter the profession and choose to work in a hospital environment.