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## CHRISTMAS 2023: WORKFORCE CRISIS

### This Barbie is a surgeon

While Barbie's career options have increased, there is clearly still room for improvement

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In her elegant qualitative study, Katherine Klammer dares the reader to dream bigger for a rising generation of girls.<sup>1</sup> In an analysis of nearly 90 Barbies, Klammer found that Barbie brand medical professional dolls largely treated children (63%, n=48/76), with only three dolls (4%, n=3/76) working with adults. 59% of the Barbie brand dolls were white, 28% black, and 6% East Asian, and none had any physical disabilities. All Barbie brand doctors appeared to have either no specialization or were paediatricians with no apparent sub-specialization. Analysis showed that the dolls' personal safety accessories were inadequate for standard practice; 98% of the Barbie brand dolls came with stethoscopes yet only 4% had face masks. Overall, the group of Barbies showed only a very limited range of medical careers.<sup>1</sup> As surgeons in decidedly male dominated fields, we support Klammer's conclusion that Barbies should represent a more diverse field of medical and scientific professions and that safety comes before fashion. Surely, personal protective equipment (known as PPE) should be commonplace accessories in medical and scientist Barbies' wardrobes. While the evolution of Barbie's career options has expanded in recent decades, there is clearly still room for improvement.

As Greta Gerwig's recent *Barbie* movie showed, there is something for everyone in Barbie Land—even weird Barbie. Imaginary play in childhood can inspire lofty career ambitions in adulthood. Many surgeons fondly recall performing their first “operation” on a favourite toy. Currently missing from Mattel's offerings, surgeon and nuclear physicist Barbies, outfitted with proper equipment and tools, could plant the seed of an idea in a young child's mind that they can be in these professions too.

Klammer's work asks the reader to imagine a Barbie world where more diverse representation of science, technology, engineering, and mathematics (STEM) careers encourages women and other under-represented groups to pursue STEM fields in the “real world.” Disappointingly, representation in Barbie dolls currently mirrors reality when it comes to women as STEM leaders. As recently as 2014, computer engineer Barbie depended on two male friends to program software for which she was merely doing the design. Despite an apologetic statement by Mattel that: “We believe girls should be empowered to understand that anything is possible and believe they live in a world without limits,”<sup>2</sup> Klammer's work shows that a decade later, Mattel still has work to do.<sup>1</sup>

Between 1849 and 1897, medicine in the US went through a major revolution in female representation: the first woman physician, Elizabeth Blackwell; the first woman surgeon, Mary Edwards Walker; the first Black woman to obtain an MD, Rebecca Crumpler; and the first Black female surgeon, Matilda Arabella Evans. In the ensuing 120 years, women have had increasingly important roles in medicine and surgery: most incoming medical students in the US are women, as are 23% of general surgeons.<sup>3</sup> Monica Bertagnolli, a surgeon, was appointed as the director of the National Institutes of Health in 2023.<sup>4</sup> Policy changes and the actions of professional societies, such as the Association of Women Surgeons and Society of Black Academic Surgeons, have had key roles in the growth of women and under-represented minorities in surgery; but, we can and should do better.

Female medical students are still disproportionately discouraged from pursuing surgical careers even at prestigious institutions.<sup>5</sup> When asked to solve this riddle: “A boy and his father are in a car accident. The father dies on the spot. The son is rushed to the emergency room. The attending surgeon looks at the boy and says, ‘I can't operate on this boy—he is my son.’ How can this be?,” fewer than 20% of Americans identified the child's mother to be the surgeon, underscoring the prevalence of gender stereotypes.<sup>6</sup> Perhaps a childhood of playing with neurosurgeon Barbie or trauma surgeon Barbie could inoculate girls against sexist career assumptions and advice. Instead, the current cadre of generalist Barbies that treat primarily children simply reinforces outdated concepts of gendered medical specialties. Mattel may default to paediatrician Barbie because young girls are more likely to connect with role models that they have encountered in real life. However, with an estimated 3.9 million children undergoing surgery in the USA each year,<sup>7</sup> surgeon Barbie could help children to understand their care while introducing surgery as a potential future career. Mattel has an opportunity: Barbie could help shatter the concept of gendered career paths.

We encourage and would welcome the creation of a surgeon Barbie (fig 1, fig 2), and would be happy to advise Mattel on the correct accompanying equipment and PPE to make sure the doll is realistic and fun! With current workforce demographics, not all young women will grow up knowing a female chemist or orthopaedic surgeon, and without a role model, these careers are difficult for young women to envisage. With an expanded line, Barbies can be inspirational to young girls' views of surgeons and scientists, rather than allowing these careers to be aspirational. What

better way than to have Barbie be the first as she has done in the past?



Fig 1 | Mattel: we did it and you can too





**Fig 2 | Barbies dressed in operating room scrubs and white coats modelled after two general surgeons at Mass General Brigham-Newton-Wellesley Hospital: Sheila Partridge and Susana Wishnia**

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