

1 **Considering a Core Curriculum for DSDs and Gender Identities - it's**
2 **complicated**

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16 Dear Editor,

17 I appreciate the Journal of Anatomy policy of having an open forum where differing
18 views can be transparently discussed. Particularly when these matters no longer
19 solely relate to private anatomy or individual healthcare, but now have broader
20 societal and legal implications in many jurisdictions. In reading the published letter to
21 the editor by Drs Venkatesh and Morris, they raise a number of points concerning
22 educating students about developmental embryology, along with clinical (and
23 presumably legal) considerations concerning individuals with DSDs or gender
24 dysphoria (Venkatesh & Morris, 2024). Its publication is timely, given the recent
25 debates in the wider medical community, and in public, following the publication of
26 the Cass report (Cass, 2024; The Cass Review, 2024).

27 The time available to teach the entirety of human embryology averages at around 14
28 hours in most medical curricula (McBride & Drake, 2018), allowing for some variance
29 between institutions, and the Core Embryology Syllabus was developed with these
30 time constraints in mind (Holland et al., 2019). Different institutions may wish to
31 apportion this time in different ways, and so the wording of the learning outcomes
32 were phrased so as to provide guidance on core content to be prioritised for
33 inclusion, without being overly constrictive. Eight of the 63 learning outcomes within
34 the syllabus specifically relate to the *Genitourinary system*, with additional outcomes
35 covering gametogenesis in males and females being referred to within the ten
36 learning outcomes of *Gametogenesis to placentation* (Holland et al., 2019). I note
37 the suggestion that “*Inclusion of learning outcomes about DSD perhaps within the*
38 *general embryology and genitourinary regional syllabi is therefore warranted*” and
39 would draw the authors’ attention to Table 3 of the Core Embryology Syllabus, where

additional contextual information is provided to support the integration of outcomes into the curriculum (Holland et al., 2019).

The authors refer to the “*anatomy of individuals with differences in sex development (DSD, previously known as intersex) and transgender individuals*” in their letter.

While intersex conditions may fall within the wider descriptors of “*Disorders of sexual development*”, “*Differences in sexual development*” or “*Variations in Sexual Development*” (VSDs), many Intersex groups and individuals reject the proposition that all DSDs are intersex conditions (OII Intersex Network, 2010; Third International Intersex Forum, 2013). The diagnosis and management of individuals with congenital conditions is a complex, and at times rapidly-changing landscape (Délot & Vilain, 2021; Sandberg & Gardner, 2022). While typical developmental embryology, and examples of variations, should rightly be included within the undergraduate curriculum (and has traditionally been taught pre-clinically by anatomists), establishing the extent to which diagnosis and management of DSDs should be included within modern undergraduate curricula is surely more appropriate for our specialist Clinical Colleagues to determine.

Many individuals and advocacy groups have also counselled that transgender and Intersex issues are distinctive and separate, although often allied in advocacy (Intersex Human Rights Australia, 2011; Agius, 2015), and our diverse legal jurisdictions give rise to additional complications if seeking to write universally accepted learning outcomes for gender dysphoria or transgender medicine.

The authors begin by stating that “*it is now believed that sex is a spectrum*”, but this is not a universally held belief (Goymann et al., 2023), even within the United

Kingdom. In the Forstater case, the UK Employment Appeal Tribunal decided that viewing sex as a binary is protected as a belief under the Equality Act 2010 (Equality Act [UK], 2010; UKET 2200909, 2019). This Act specifies sex, *sexual orientation and gender reassignment* to all be separate, but equally protected, characteristics (Equality Act [UK], 2010). The authors appear to currently reside in Scotland, where the Gender Recognition Reform (Scotland) Bill was passed by the Scottish Parliament in December 2022, then blocked by the UK Government under section 35 of the Scotland Act 1998; the Scottish Government has challenged the validity of the Section 35 order in court, and the case remains ongoing (Paun & Allen, 2023).

Irish legislation also currently recognises sex (and gender) as being binary, *“that one is male and the other is female (the “gender ground”)*” (Equal Status Act [Ireland], 2000), and allows that anyone may legally change their gender by signing a solemn declaration and *“provides that a gender recognition certificate has effect that if the preferred gender is the male gender, the person’s sex becomes that of a man, and if the female gender, the person’s sex becomes that of a woman”* (Gender Recognition Act [Ireland], 2015). Anyone who wishes to be identified as female under Irish law may now do so by signing this form, and the Irish Equality Act specifies gender (not sex) as a legally-protected characteristic (Equality Act [Ireland], 2004), irrespective of any prior or proposed medical or surgical interventions, or the absence thereof.

Matters may yet become more confusing here in Ireland, as the Criminal Justice Bill currently being considered by our Oireachtas proposes that *“‘Gender’ means the gender of a person or the gender which a person expresses as the person’s preferred gender or with which the person identifies and includes transgender and a gender other than those of male and female”* (Criminal Justice Bill, 2022). Gender is

defined as gender, and the proposal to include legally dubious and ambiguous phrasing such as this circular argument in Oireachtas legislation has been the subject of many calls for clarity (Holland, 2023; Salach, 2023), including from many Independent Senators and a former Irish Attorney General (McDowell, 2023). Senator McDowell also asks “*Is transgender a gender for the purposes of Irish law*”; legal clarity is required on what it is to be transgender in many jurisdictions, given the implications for access to public services, or occasions requiring criminal incarceration (Freedman et al., 2020).

The needs and lived experiences of those whose gender identity and physical natal sex remain in alignment will differ from any who transition; socially, psychologically, and medically (Delgado-Ruiz et al., 2019; Griffin et al., 2020; Mauvais-Jarvis et al., 2020), and the UK Equality Act laudably recognises *sex, sexual orientation and gender reassignment* as being separate and distinct (Equality Act [UK], 2010). The hormonal and surgical treatments available for those who wish to go beyond social transition are extensive and complex, and there are an increasing number of ethico-legal issues being highlighted (Abbruzzese et al., 2023; Block, 2023; Giordano and Horowicz, 2023). Gender medicine for young people has been strongly criticised in recent months as being “*built on shaky foundations*” (Abbasi, 2024; Cass, 2024) and many jurisdictions have now legislated to restrict interventions for minors (Tanne, 2023; UK Statutory Instrument 2024/727, 2024). There is a growing number of detransitioners reverting to their natal sex, many of whom feel they were inadequately evaluated or advised before starting transition (Littman, 2021).

The constitution and co-ordination of a Delphi Panel to write Learning Outcomes and a Syllabus for Medical Curricula on such a complex, and increasingly controversial

clinical topic should not be performed solely by an Anatomical Society. Collaboration and input will need to be sought from multiple clinical disciplines (Genetics, Paediatrics, Endocrinology, Urology, Obstetrics & Gynaecology, Clinical Psychology etc.), in addition to ensuring input from various advocacy groups, representing the interests and views of those with lived experience of the many physical and psychological factors which would require consideration for inclusion in such a Syllabus. Such an endeavour is best led by a clinical colleague active in this area. If one is willing, given Dr Cass' experience (Beal, 2024).

However, many complex conditions exist which require hormonal or surgical interventions, and thus alter natal physiology or anatomy. It is not uncommon for us as anatomists to observe cadavers with orthopaedic devices, gastrointestinal resections, arterial bypasses, and other conditions where anatomy is surgically altered. While we will give some brief explanation of any conditions or altered anatomy observed in our donors, detailed discussion of applied surgical anatomy and operative technique is more rightly the remit of specialist postgraduate study, as opposed to simplified explanations that may lead to a sense of false confidence or expertise in what can often be clinically complex decisions, requiring careful consideration of the very specific circumstances and needs of individual patients. Having initially trained and worked clinically as a surgeon until my early thirties, I think that current diagnosis, medical management and principles of surgical intervention for DSDs and gender dysphoria are more appropriately specified, taught and assessed by our Clinical Colleagues.

References:

Abbasi K. 2024. The Cass review: an opportunity to unite behind evidence informed care in gender medicine. BMJ 385, q837. <https://doi.org/10.1136/bmj.q837>

Abbruzzese E, Levine SB, Mason JW. 2023. The Myth of “Reliable Research” in Pediatric Gender Medicine: A critical evaluation of the Dutch Studies—and research that has followed. Journal of Sex & Marital Therapy 49, 673 - 699. <https://doi.org/10.1080/0092623X.2022.2150346>

Agius S. 2015. Human rights and intersex people, Council of Europe. Retrieved from <https://rm.coe.int/16806da5d4>

Beal J. 2024. Hilary Cass: I can't travel on public transport after gender report. *The Times*, 19 April 2024. Retrieved from <https://www.thetimes.co.uk/article/hilary-cass-i-cant-travel-on-public-transport-any-more-35pt0mvnh>

Block J. 2023. Gender dysphoria in young people is rising—and so is professional disagreement. BMJ 380, p382. <https://doi.org/10.1136/bmj.p382>

Cass H. 2024. Gender medicine for children and young people is built on shaky foundations. Here is how we strengthen services, BMJ 384, q814. <https://doi.org/10.1136/bmj.q814>

150 Criminal Justice Bill. 2022. Criminal Justice (Incitement to Violence or Hatred and
151 Hate Offences) Bill 2022. Ireland. Retrieved from
152 <https://www.oireachtas.ie/en/bills/bill/2022/105/>

153 Delgado-Ruiz R, Swanson P, Romanos G. 2019. Systematic review of the long-term
154 effects of transgender hormone therapy on bone markers and bone mineral density
155 and their potential effects in implant therapy. Journal of Clinical Medicine 8, 784.
156 <https://doi.org/10.3390/jcm8060784>

157 Délot EC and Vilain E. 2021. Towards improved genetic diagnosis of human
158 differences of sex development. Nature Reviews Genetics 22, 588 - 602.
159 <https://doi.org/10.1038/s41576-021-00365-5>

160 Equal Status Act [Ireland]. 2000. Equal Status Act Irish Statute Book; Retrieved from
161 <https://revisedacts.lawreform.ie/eli/2000/act/8/revised/en/html>

162 Equality Act [Ireland]. 2004. Equality Act. Irish Statute Book; Retrieved from
163 <https://www.irishstatutebook.ie/eli/2004/act/24/enacted/en/print>

164 Equality Act [UK]. 2010. Equality Act. United Kingdom; Retrieved from
165 <https://www.legislation.gov.uk/ukpga/2010/15/contents>

166 Freedman R, Stock K, Sullivan A. 2020 Written evidence submitted by Professor
167 Rosa Freedman, Professor Kathleen Stock and Professor Alice Sullivan [GRA2021].
168 Retrieved from <https://committees.parliament.uk/writtenevidence/18973/pdf>.

169 Giordano S and Horowicz E. 2023. Gender-affirming surgery for transgender
170 Adolescents: Ethical and legal considerations. Best Practice & Research Clinical
171 Obstetrics & Gynaecology 86, 102295.
172 <https://doi.org/10.1016/j.bpobgyn.2022.102295>

173 Goymann W, Brumm H, Kappeler PM. 2023. Biological sex is binary, even though
174 there is a rainbow of sex roles: Denying biological sex is anthropocentric and
175 promotes species chauvinism. Bioessays 45, 2200173.
176 <https://doi.org/10.1002/bies.202200173>

177 Griffin L, Clyde K, Byng R, Bewley S. 2021. Sex, gender and gender identity: a re-
178 evaluation of the evidence. BJPsych Bulletin: 45, 291-299.
179 <https://doi.org/10.1192/bjb.2020.73>

180 Holland JC, 2023. An Irish anatomist opines on sex and gender. Genspect.
181 <https://genspect.org/an-irish-anatomist-opines-on-sex-and-gender;>
182 <https://doi.org/10.5281/zenodo.11395272>

183 Holland JC, Smith C, O'Shea M, Stewart J, Ockleford C, Finn GM. 2019. The
184 anatomical society core embryology syllabus for undergraduate medicine. J Anat.
185 235, 847-860. <https://doi.org/10.1111/joa.13023>

186 Intersex Human Rights Australia. 2011. 'ISGD' and the appropriation of intersex.
187 Retrieved from <https://oii.org.au/13651/isgd-and-the-appropriation-of-intersex/>

188 Littman L. 2021. Individuals Treated for Gender Dysphoria with Medical and/or
189 Surgical Transition Who Subsequently Detransitioned: A Survey of 100
190 Detransitioners. Archives of Sexual Behavior 50, 3353 - 3369.

191 <https://doi.org/10.1007/s10508-021-02163-w>

192 Mauvais-Jarvis, F., Merz, N.B., Barnes, P.J., Brinton, R.D., Carrero, J.J., DeMeo,
193 D.L., De Vries, G.J., Epperson, C.N., Govindan, R., Klein, S.L. and Lonardo, A.,
194 2020. Sex and gender: modifiers of health, disease, and medicine. The Lancet, 396,
195 565-582. [https://doi.org/10.1016/S0140-6736\(20\)31561-0](https://doi.org/10.1016/S0140-6736(20)31561-0)

196 McBride JM and Drake RL. 2018. National survey on anatomical sciences in medical
197 education. Anat Sci Educ 11, 7-14. <https://doi.org/10.1002/ase.1760>

198 McDowell M. 2023. Clarification sought on Incitement to Hate Offences Bill.
199 Retrieved from [https://www.michaelmcdowell.ie/clarification-sought-on-incitement-to-](https://www.michaelmcdowell.ie/clarification-sought-on-incitement-to-hate-offences-bill.html)
200 [hate-offences-bill.html](https://www.michaelmcdowell.ie/clarification-sought-on-incitement-to-hate-offences-bill.html)

201 OII Intersex Network. 2010. The Terminology of Intersex. Retrieved from
202 <https://oiiinternational.com/2602/terminology-intersex/>

203 Paun A and Allen B. 2023. The use of Section 35 of the Scotland Act to block the
204 Gender Recognition Reform (Scotland) Bill. Retrieved from
205 [https://www.instituteforgovernment.org.uk/explainer/section-35-scotland-gender-](https://www.instituteforgovernment.org.uk/explainer/section-35-scotland-gender-recognition-bill)
206 [recognition-bill](https://www.instituteforgovernment.org.uk/explainer/section-35-scotland-gender-recognition-bill)

207 Salach M. 2023. Gender and the Hate Crime Bill in Ireland." Retrieved from
208 <https://genspect.org/gender-and-the-hate-crime-bill-in-ireland>

209 Sandberg DE and Gardner M. 2022. Differences Disorders of Sex Development:
210 Medical Conditions at the Intersection of Sex and Gender. Ann Rev Clin Psychol 18,
211 <https://doi.org/10.1146/annurev-clinpsy-081219-101412>

212 Tanne JH. 2023. Transgender care: 19 US states ban or restrict access with
213 penalties for doctors who break the law. BMJ 381, 1167.
214 <https://doi.org/10.1136/bmj.p1167>

215 The Cass Review. 2024. Independent review of gender identity services for children
216 and young people. Retrieved from [https://cass.independent-](https://cass.independent-review.uk/home/publications/final-report)
217 [review.uk/home/publications/final-report](https://cass.independent-review.uk/home/publications/final-report)

218 Third International Intersex Forum. 2013. Malta Declaration. Retrieved from
219 <https://www.oii-europe.org/malta-declaration/>

220 UK Statutory Instrument 2024/727. 2024. The Medicines (Gonadotrophin-Releasing
221 Hormone Analogues) (Emergency Prohibition) (England, Wales and Scotland) Order
222 2024/727. Retrieved from www.legislation.gov.uk/uk-si/2024/727/contents/made

223 UKET 2200909. 2019. Forstater v Centre for Global Development Europe. 2200909.
224 Retrieved from [https://www.gov.uk/employment-tribunal-decisions/maya-forstater-v-](https://www.gov.uk/employment-tribunal-decisions/maya-forstater-v-cgd-europe-and-others-2200909-2019)
225 [cgd-europe-and-others-2200909-2019](https://www.gov.uk/employment-tribunal-decisions/maya-forstater-v-cgd-europe-and-others-2200909-2019)

226 Venkatesh A and Morris AG. 2024. The need for creation of new learning outcomes
227 in core curricula publications on differences in sex development and transgender
228 anatomy. J Anat: epub ahead of print. <https://doi.org/10.1111/joa.14060>

229