BioSocieties
https://doi.org/10.1057/s41292-026-00380-x

INTRODUCTION

Introduction to the special issue: The *Near Human* in life science, biomedicine, and care

Iben Mundbjerg Gjødsbøl[1] · **Mie Seest Dam**[1] · **Laura Emdal Navne**[2]

© The Author(s) 2026

For decades, science and technology studies (STS) and medical anthropology have documented how biomedical innovation produces liminal life forms as both *bios* and *society* through interwoven biological processes and socio-technical arrangements (Kaufman and Morgan 2005; Marsland and Prince 2012). At the beginning of life, laboratory studies have shown how gametes, embryos, and stem cells become humanized through socio-material practices (e.g. Wahlberg 2018; Morgan 2009; Thompson 2007; Hogle 2010; Franklin 2004; Waldby 2002). Ethnographies from clinics have demonstrated how fetuses and prematurely born babies acquire personhood and recognition as lives worth sustaining, by being practically and temporally placed within larger social collectives (e.g. Rapp 1999; Taylor 2008; Gammeltoft 2014; Mesman 2008; Navne et al. 2018; Svendsen 2015). At the end of life, ethnographic research has explored how liminal beings such as the comatose and people with cognitive disabilities are sustained as persons through the care work of relatives, professionals, and institutions (e.g. Solomon 2022; Lock 2002; Kaufman 2006; Taylor 2008; Gjødsbøl 2023). Moreover, multi-species scholarship has documented how highly contingent care practices allow laboratory animals to act not only as biogenetic proxies for humans but also be recognized as fellow sentient beings, with the potential to step into the identities of the patients they model (e.g. Friese 2025; Hinterberger 2018; Sharp 2018; Davies 2012; Haraway 2008; Dam et al. 2018). These empirical and conceptual explorations of novel life forms, and the moral challenges they stir, have highlighted that what counts as human is not only imagined but enacted—socially, materially, and morally.

✉ Iben Mundbjerg Gjødsbøl
ibgj@sund.ku.dk

[1] Centre for Medical Science and Technology Studies, Department of Public Health, University of Copenhagen, Øster Farimagsgade 5B 1353, Copenhagen, Denmark

[2] The Danish Center for Social Science Research, Herluf Trolles Gade 11 1052, Copenhagen, Denmark

Published online: 09 February 2026

Broadly speaking, these bodies of literature have traced how the liminal objects and subjects produced by biomedical technological innovation approach and become '*near human*' through socio-material-moral practices (Svendsen 2022; Svendsen et al. 2017; see also Bea and Hinterberger 2025). In contrast to previous scholarship, the contributions to this special issue argue that near-human life in medical and scientific practice is constituted not simply through proximity to the human, but through the deliberate production, calibration, and maintenance of *distance* from the category human (see also Giraud 2019). In her book, *Near Human: Border Zones of Species, Life, and Belonging*, Mette N. Svendsen (2022), introduces the concept of nearness to bring into view the (dis)entanglement of more-than-human life forms in biomedicine. Exploring how laboratory practices turn preterm piglets into near-human substitutes that stand in for prematurely born infants in neonatal experimental science, Svendsen argues that 'substitution' brings together two notions of 'near': the circumstance of being comparable and alike (when research animals are modeled to be almost humans), and the experience of being intimate and close (when one being steps into the position of another as an act of care). These notions of 'near' immediately connote likeness, proximity, intimacy, and inclusion. However, as *Near Human* also demonstrates, to be near someone or something also necessarily entails *not* being fully similar to the other, meaning that nearness also implies distance, difference, alienation, and exclusion. These insights position nearness not merely as a descriptive feature of biomedical practice, but as an analytical lens through which to revisit long-standing debates within STS and medical anthropology on biomedical modeling and infrastructures, care and ethics, and the governance and valuation of life as everyday, situated practices.

Elaborating on Svendsen's insights, this special issue explores how objects emerging at the forefront of biomedical science, innovation, and care are constituted as near human in time, space, species, comprehension, and physical form. The five papers of this issue approach nearness not merely as similarity or closeness, but as a relational achievement that relies as much on maintaining difference and distance. Analytically, we thus attend to the *distance* that is constitutive of nearness, that is, how biomedical, technological, and care practices produce the near human by carefully calibrating proximity and difference. Within STS and medical anthropology, scholars have examined how scientific models, proxies, and experimental subjects are made to stand in for human bodies and capacities; how care is enacted through intimate and hierarchically asymmetrical relations; and how biomedical interventions and epistemic infrastructures participate in governing, optimizing, and thus valuing life. The concept of nearness allows us to bring these conversations together by foregrounding how frontier biomedical innovation and care depend on producing life forms and entities—fleshy as well as digital—that are *close enough* to the human to be representative, effective, and credible, while remaining *distanced enough* to be ethically acceptable, governable, instrumentalized, and even disposable.

Employing nearness as a shared analytical frame, we ask: How are proximity and distance produced, maintained, negotiated, mobilized, and sometimes erased in constituting near-human entities across clinics, laboratories, homes, and states? What moral ambiguities arise for those involved in calibrating nearness—researchers, clinicians, ethicists, patients, and relatives alike? How do human actors navigate these



ambiguities in the practical and ethical work of crafting and deploying near-human life forms to enhance, substitute, and prolong human life? What interdependencies and infrastructural arrangements between human and non-human actors does the figure of the near human enable or foreclose, and how do these relations participate in valuing some forms of life over others? Finally, what larger political and moral economies are implicated in the local practices of optimizing human life through the making of near-human substitutes?

Where STS has often displaced the question of the human by treating humans as actors symmetrically on par with non-human entities and thus bracketing questions of 'meaning', this special issue deliberately puts the human at its center. We do so, however, not in the classical anthropological or sociological register of *what it means* to be human, but through an STS-oriented concern with *what it takes* to be human (cf. Svendsen 2022:34; see also Butler 2009). Analyzing how technological objects, infrastructures, organisms, persons, and care scripts are employed to model, support, and substitute for human patients and professionals, the contributions interrogate how the near human is *enacted* in practice in contemporary life sciences, biomedicine, and care. As an analytical concept, nearness offers a distinctive entry point to examine how borders between species, bodies, persons, and technologies are not simply crossed or blurred, but also carefully managed through practices in which human actors seek to balance and combine proximity and distance. While nearness may appear to carry positive connotations—echoing familiar valorizations of intimacy, proximity, and care—this special issue deliberately resists treating nearness as a normative good. Instead, we remain attentive to how near-human configurations simultaneously enable biomedical care and technological innovation while obscuring harm and redistributing risk and suffering across human and non-human actors. Collectively, the contributions stay analytically curious about how the near human is constituted, what it produces and conceals, whom it serves, and with what consequences. Nearness thus extends existing STS approaches to relationality, care, and ethics by insisting that distance, difference, and exclusion are not failures but often conditions of possibility for biomedical intervention in and governance of the human.

Lesley A. Sharp's contribution *Disrupting the "near human" in contemporary xenotransplantation* opens the special issue by raising the concern that the ambition of contemporary xenoscience is the transcendence—and thus the erasure—of biological differences between humans and animals. Examining how the current resurgence of xenotransplantation operates through the refusion and deliberate transgression of interspecies boundaries, she shows how xenoscience has engendered a range of near-human life forms. These include genetically altered and thus 'humanized' pigs and their corresponding 'porcinized' human recipients; non-human primates who stand in as experimental proxies for testing porcine graft viability in humans; terminally ill patients desperately in need of organ replacement but deemed ineligible for human grafts; and a newly conceived category of 'decedents,' constituted by recently deceased human patients mobilized to experimentally test interspecies organ transplants. Drawing on her long-term ethnographic engagements with the field, Sharp traces how traditional xenoresearchers in the United States have abandoned the scientific commons in favor of partnerships with for-profit biotech and pharmaceutical corporations, and how, in turn, 'source animals' such as genetically altered pigs have

'migrated from farm to pharma,' their ongoing production sustained by a growing influx of venture capital. Through four interventions, Sharp invites readers to reflect upon and interrogate the broader moral and political ramifications of xenoscience's radical attempts to unsettle established categories of human/animal, living/dead, and patient/research object. Sharp's astute analysis of contemporary xenotransplantation's drive to disrupt, distort, and override interspecies difference in response to the chronic scarcity of transplantable organs—what she terms 'organ hunger'—lays bare the obscured hierarchies of human and animal worth and the experimental suffering endured across species when animals and humans alike are configured as biocapital. Xenoscience's bioethical drift toward satisfying insatiable human needs and aspirations for longevity depends on continuous, expanding, and self-devouring redefinitions of the boundaries between self and other, human and animal, and life and death.

Blurred boundaries of self and other are also at the heart of **Mie S. Dam** and **Tone Druglitrø's** paper *Choreographies of nearness: self and other in personal cancer immune therapy research*. They investigate how the 'person(al)' is configured in a promising experimental cancer immune therapy in which immune cells isolated from patients' metastatic cancer tissue are used to eliminate otherwise incurable cancers. Drawing upon ethnographic fieldwork at the Danish National Centre for Cancer Immune Therapy (CCIT-DK), Dam and Druglitrø trace how cancer tissue and immune cells originating from the same individual are made to oscillate between being part of the personal self and being other, all in the service of producing a personalized cancer cure. As tumours are removed from patient's bodies; immune cells are isolated from the tumours; and activated and expanded T-cells are reinfused into the patient, this bodily material is neither enacted as entirely 'self' nor entirely 'other', but as 'near' the embodied person from whom it originated. Dam and Druglitrø introduce the concept of 'choreographies of nearness' as an analytical tool to unfold how experimental autologous therapies dissolve ontological and ethical boundaries of the person(al). These choreographies—choreographing cancer, choreographing T-cells, choreographing the patient—materialise not as linear or stable procedures but as recursive, distributed, and ambivalently affective practices. They are practices in which selfness and otherness, care and harm, hope and risk are not opposites but co-present and contingent. Through choreographies of nearness, Dam and Druglitrø expose experimental and highly personalized therapies as deeply relational endeavours, where the distance involved in being 'near self' holds powers that are not only benevolent and productive but also unpredictable and potentially life-threatening. Complex moral and epistemic infrastructures—such as protocols governing personalized immunotherapy—are thus not merely logistical devices; they actively configure which forms of life are sustained, transformed, or lost.

With a similar interest in analyzing novel life forms and the technoscientific infrastructures that enable and produce them, **Linda F. Hogle's** paper *Nearness by design: modeling brains with organoids* explores the imagined and desired properties of humanness in biomedical modeling through the empirical case of human brain organoids (hBOs). hBOs are three-dimensional cell cultures derived from embryonic cells and grown in the lab to model the human brain in neuroscience research. While organoids in general are conceived as representative models for understanding biological phenomena and processes—and as a solution to the ethical and practi-



cal problems of animal and human testing—hBOs carry the contested meanings of personhood and consciousness attached to the brain. Drawing upon ethnographic, longitudinal projects on regenerative medicine, Hogle unpacks the profound tensions at stake in organoid modelling of the human brain. In making hBOs substitutes for humans as valuable research or commercial tools, scientists and ethicists navigate the tension of positioning hBOs as near-enough to living brains to serve as convincing models, while simultaneously keeping those near-human entities distanced from the moral and cultural meanings of the brain. These tensions surface in attribute and evidence definitions, classification systems, rhetorical framings, and the material and discursive means through which organoids are constructed as either near-original (human) or distinctly different substitutes, valuable models, or problematic novel life forms. Conceptualizing these material, rhetorical, and discursive practices as authentication practices, Hogle foregrounds the scientific, moral, and practical ambiguities in authenticating hBOs as valid and valuable human substitutes. Authentication operates, among other things, to divert attention away from intractable and unsettled quandaries surrounding the moral status and meanings of the human brain and how it is modelled in organoids. At stake in such practices, Hogle argues, are larger ethical and political questions about how human subjectivity, personhood, and uniqueness come to be understood in the face of not only hBOs but also other emergent life forms, such as embryos and artificial intelligence, evoking fears of the substitution of human autonomy, labor, and wisdom.

Iben M. Gjødsbøl's contribution *Predictive algorithms in healthcare: constituting 'Artificial Intelligence' as near human* interrogates how artificial intelligence (AI)—resting on an anthropomorphic move that overrides boundaries between human and machine—unsettles what it means and takes to be human when employed in practice. Drawing upon ethnographic fieldwork with clinical researchers and cardiologists who developed and implemented a predictive algorithm in clinical practice, Gjødsbøl demonstrates how human actors alternately enacted 'AI' as a near-human persona and as an inferior, subhuman tool. Much like Hogle's study of hBOs, researchers and cardiologists navigated a tension between imbuing the CARDIA^{IHD} algorithm with near-human qualities and simultaneously subsuming it under human autonomy and agency to establish and navigate 'AI' as a valuable and morally legitimate substitute in clinical decision-making. In practical use, however, Gjødsbøl shows that clinicians did not experience the algorithm as a reliable or valuable substitute for their cognitive capacities in processing data and prognosticating for patients. Instead, they often ignored the algorithmic output and denied the algorithm's belonging in the network of human and non-human actors involved in decision-making. In contrast to the biological models interrogated by Sharp and Hogle in this issue, Gjødsbøl's exploration of an 'abiotic' entity emphasizes the significance of co-suffering and affective interpellation between the human original and its substitute in shaping how novel life forms come to be constituted as near-human in biomedical modeling. While abiotic life forms, such as an algorithm, may be immortal, Gjødsbøl's contribution emphasizes their profound precariousness by exposing the importance of affective–moral labor and the role of humans as hosts for substitution practices in enabling emerging, near-human entities to live, socialize, and belong in the clinic.

The affective and moral components of putting oneself in another's place are at the heart of **Janelle S. Taylor** and **Elizabeth K. Vig's** contribution *The nearness of the state: substitution practices at the ragged ends of life in the U.S.* Their article examines the social processes and material conditions required for a surrogate decision-maker to stand in for another person and implement the wishes expressed to them. Recounting two empirical stories of substituted judgment enacted through Advance Care Planning in the face of cognitive impairment in late life, Taylor and Vig demonstrate that when it comes to making proxy decisions, being 'near' in the sense of intimate and close does not necessarily lead people to enact decisions that are 'near' in the sense of comparable and alike. Through the stories of Doreen, whose husband was affected by a stroke, and Ellen, whose close friend was diagnosed with early-onset dementia, we learn how the wills and wishes of the now-incapacitated and cognitively impaired are—if at all possible—enacted through multiple, layered substitution practices. Such substitution practices involve relations between a person's present and future self, ties to family members and friends, the actions of medical professionals, and legal documents. Comparing the care provided by the state in what Taylor and Vig term the 'ragged ends of life' across the U.S. and the Danish welfare state, they poignantly make evident how the state is implicated in defining who counts as 'near'. Close ethnographic attention to what precarious lives mean, how they are (or are not) valued through care, and what kind of state they conjure up in different contexts reveals the presence—or 'nearness'—of the state and affords novel perspectives on when the state becomes palpable, and what 'the state' is understood to be and do. Taylor and Vig's contribution renders visible how the substitution practices enabled and made possible (or impossible) by the state intersect with and configure what constitutes a life worth living, and what individuals and collectives are implicated in valuing life through care. They end their article expressing hope that the defunding and rollback of U.S. governmental programmes and institutions supporting care and research occurring in mid-2025 were merely a brief blip. At the time of writing, at the beginning of 2026, we see no reason to dismiss fears of dramatic and long-term consequences. All the more reason for reiterating Taylor and Vig, who close their essay by returning to the questions instigated by Svendsen's (2022) concepts of substitution and nearness: Which lives do we value, and how? What futures—individual, collective, and societal—do we envision and enact?

Each in its own manner, the five papers in this issue contribute an empirically rich account of how aspirations toward the near human drive biomedical research, innovation, and care. In her afterword, Mette N. Svendsen situates these aspirations toward nearness within a broader scientific, political, and moral project that pursues *precision* through the development and deployment of *precision technologies*. Taken together, the contributions elucidate how efforts to mirror and model the human engender novel biotic and abiotic entities—as well as infrastructures and practices to sustain them—which in turn reconfigure what we take to be the human. They do so from different empirical vantage points, ranging from the political and scientific rationales for addressing a scarcity of human organs and human experimental models, to the everyday clinical practices in which novel biomedical models and therapies are applied to substitute for human reasoning and biology, to the institutional and bureaucratic procedures that frame what forms of nearness are made possible



by the state. In concert, the articles underscore the continued analytical purchase of established STS concepts such as script, infrastructure, standardization, value, and symmetry for interrogating the heterogeneous networks that constitute frontier biomedical science and care. At the same time, the contributions collectively demonstrate that emergent fleshy and digital life forms generate morally charged questions and uncertainties concerning what counts as human—questions to which traditional STS concepts have been comparatively less attuned, yet which are deeply entangled with biopolitical projects of governing, valuing, and optimizing life. In response, we propose nearness, and the figure of the near human, as an analytical framework for examining the profound moral, affective, and biopolitical stakes involved in modeling the human.

Through the common framework of nearness, the contributions highlight that the infrastructures supporting technoscientific development rest upon an expanding series of near-human life forms (Sharp). Whereas some of these life forms are meant to solve ethical problems and quandaries about human and animal suffering in experimental biomedical modeling, ambiguous entities created to share biological and functional affinities with humans end up generating new ethical questions about their moral status and their capacities to exceed and potentially outperform their human counterparts (Hogle and Gjødsbøl). Moreover, just as the 'othering' of cells and tissue from the same individual entails not only the potential for cure but also the risk of collapse (Dam and Druglitrø), so too might those who are experienced as 'near' become 'othered' by technological care scripts and state bureaucracies, thereby being deprived of the possibility to care (Taylor and Vig).

Across diverse empirical sites, nearness emerges as both a practical and moral accomplishment through which human likeness is produced, calibrated, and constrained. Rather than treating nearness as a value-laden state of sameness, the papers show that becoming near human requires continuous work to balance proximity with distance, care with harm, and substitution with exclusion. By foregrounding the moral and practical significance of distance and difference within projects oriented toward the near human, the special issue advances STS and medical-anthropological debates on modeling, care, ethics, and biopolitics. Nearness offers a critical lens for understanding how the figure of the near human intervenes in life, not only by transforming bodies and technologies but by reshaping the relations, responsibilities, and hierarchies through which life becomes governable, valuable, and worth sustaining. As Svendsen's work demonstrates, attending to nearness allows us to grasp how the pursuit of the human—through its substitutes, proxies, and extensions—redefines what counts as (human) life, who is entitled to care, who is left to suffer, and how the future of healthcare is imagined and enacted.

Open Access This article is licensed under a Creative Commons Attribution-NonCommercial-NoDerivatives 4.0 International License, which permits any non-commercial use, sharing, distribution and reproduction in any medium or format, as long as you give appropriate credit to the original author(s) and the source, provide a link to the Creative Commons licence, and indicate if you modified the licensed material. You do not have permission under this licence to share adapted material derived from this article or parts of it. The images or other third party material in this article are included in the article's Creative Commons licence, unless indicated otherwise in a credit line to the material. If material is not included in the article's Creative Commons licence and your intended use is not permitted by statutory regulation or



exceeds the permitted use, you will need to obtain permission directly from the copyright holder. To view a copy of this licence, visit http://creativecommons.org/licenses/by-nc-nd/4.0/.

References

Bea, S., and A. Hinterberger. 2025. From cells to organoids: Sociological Considerations for the Bioengineering of Human Models. *Sociology of Health & Illness* 47 (2): 1–11.

Butler, J. 2009. *Frames of War: When Is Life Grievable?* London and New York: Verso Books.

Dam, M. S., P. T. Sangild, and M. N. Svendsen. 2018. Translational Neonatology Research: Transformative Encounters Across Species and Disciplines. *History and Philosophy of the Life Sciences* 40 (1) : 21.

Davies, G. 2012. Caring for the Multiple and the Multitude: Assembling Animal Welfare and Enabling Ethical Critique. *Environment and Planning d: Society & Space* 30: 623–638.

Franklin, S. 2004. Stem Cells R Us: Emergent Life Forms and the Global Biological. In *Global Assemblages: Technology, Politics and Ethics as Anthropological Problems*, ed. A. Ong and S. J. Collier, 59–78. New York and London: Blackwell.

Friese, C. 2025. *A Mouse in a Cage: Rethinking Humanitarianism and the Rights of Lab Animals*. New York: New York University Press.

Gammeltoft, T. 2014. *Haunting Images: Selective Reproduction in Vietnam*. Berkeley and Los Angeles: University of California Press.

Giraud, E. H. 2019. *What Comes After Entanglement: Activism, Anthropocentrism and an Ethics of Exclusion*. Durham, NC: Duke University Press.

Gjødsbøl, I. M. 2023. Intangible cultural heritage: 'Curating' the human. *Culture, Medicine, and Psychiatry* 47 (3): 766–789. https://doi.org/10.1007/s11013-022-09797-y.

Haraway, D. 2008. "Sharing Suffering: Instrumental Relations Between Laboratory Animals and their People." In: *When Species Meet*, 69–93. Minneapolis: University of Minnesota Press.

Hinterberger, A. 2018. Marked 'h' for Human: Chimeric Life and the Politics of the Human. *BioSocieties* 13 (2): 453–469.

Hogle, L. 2010. Characterizing Human Embryonic Stem Cells: Biological and Social Markers of Identity. *Medical Anthropology Quarterly* 24 (4): 433–450.

Kaufman, S. R. 2006. Dementia-Near-Death and "Life Itself." In *Thinking about Dementia*, ed. A. Leibing and L. Cohen, 23–42. New Brunswick, NJ: Rutgers University Press.

Kaufman, S. R., and L. Morgan. 2005. The Anthropology of the Beginnings and Ends of Life. *Annual Review of Anthropology* 34: 317–341.

Lock, M. 2002. *Twice Dead: Organ Transplants and the Reinvention of Death*. Berkeley: University of California Press.

Marsland, R., and R. Prince. 2012. What is Life Worth? Exploring Biomedical Interventions, Survival, and the Politics of Life. *Medical Anthropology Quarterly* 26 (4): 453–469.

Mesman, J. 2008. *Uncertainty in Medical Innovation: Experienced Pioneers in Neonatal Care*. London: Palgrave Macmillan.

Morgan, L. 2009. *Icons of Life: A Cultural History of Human Embryos*. Berkeley: University of California Press.

Navne, L., M. N. Svendsen, and T. Gammeltoft. 2018. The Attachment Imperative: Parental Experiences of Relation-Making in a Danish Neonatal Intensive Care Unit. *Medical Anthropology Quarterly* 32 (1): 120–137.

Rapp, R. 1999. *Testing Women, Testing the Fetus: The Social Impact of Amniocentesis in America*. New York: Routledge.

Sharp, L. A. 2018. *Animal Ethos: The Morality of Human-Animal Encounters in Experimental Lab Science*. Berkeley: University of California Press.

Solomon, H. 2022. *Lifelines: The Traffic of Trauma*. Durham: Duke University Press.

Svendsen, M. N. 2015. Selective Reproduction: Social and Temporal Imaginaries for Negotiating the Value of Life in Human and Animal Neonates. *Medical Anthropology Quarterly* 29: 178–195.

Svendsen, M. N. 2022. *Near Human: Border Zones of Species, Life, and Belonging*. New Brunswick, NJ: Rutgers University Press.



Svendsen, M. N., I. M. Gjødsbøl, M. S. Dam, and L. E. Navne. 2017. Humanity at the Edge: The Moral Laboratory of Feeding Precarious Lives. *Culture, Medicine, and Psychiatry* 41 (2): 202–223.

Taylor, J. S. 2008. *The Public Life of the Fetal Sonogram: Technology, Consumption, and the Politics of Reproduction*. New Brunswick, NJ: Rutgers University Press.

Thompson, C. 2007. *Making Parents: The Ontological Choreography of Reproductive Technologies*. Cambridge, MA: MIT Press.

Wahlberg, A. 2018. *Good Quality: The Routinization of Sperm Banking in China*. Berkeley: University of California Press.

Waldby, C. 2002. Stem Cells, Tissue Culture and the Production of Biovalue. *Health* 6 (3): 305–323.

Publisher's Note Springer Nature remains neutral with regard to jurisdictional claims in published maps and institutional affiliations.

