Commentary: Position statement on augmented intelligence (AuI)

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Augmented intelligence (AuI) is a term that focuses on the assistive role of artificial intelligence (AI), emphasizing that AuI is designed to enhance human intelligence and the physician-patient relationship rather than replace it.

Given the pace of technologic innovation and the potential for AuI to significantly impact medicine, the American Medical Association (AMA) published its first policy and general guidelines in this field in June 2018.[1] To ensure safe, effective, and equitable use of and access to AuI, the AMA states that it will (1) ensure that improved patient outcomes and provider satisfaction are priorities, (2) integrate practicing physicians into the development of AuI, (3) promote development of thoughtfully designed, high-quality, clinically validated AuI, (4) encourage education for all stakeholders to promote greater understanding of the promise and limitations of AuI, and (5) explore the legal implications of AuI.

AuI holds transformative potential in the care of skin with impact on each of the quadruple aims: enhancing patient experience, improving population health, reducing costs, and improving the professional fulfillment of care teams. AuI in dermatology is quickly developing,[2,3] and as this technology is poised to enter the clinical realm, a position statement more specific to dermatology is critical. In response to this, the American Academy of Dermatology convened a task force with the purpose of drafting such a statement.

This approved position statement[4] affirms that the key to realizing the promise of AuI is to ensure that the technology is collaboratively developed and designed for the benefit of our patients, physicians, and the health care system at large, while at the same time minimizing the risk of potentially disruptive effects and unintended consequences. Each application of AuI in the care of skin must be subject to the highest validation and quality standards before widespread use in health care delivery (Fig 1).

The position statement promotes standards for the design, evaluation, and implementation of high-quality AuI technology. The development of AuI technology relies on the use of high-quality training data sets that represent the populations on which it will be used. AuI algorithms should be internally and clinically validated before being integrated into patient care. Prospective clinical trials evaluating safety and effectiveness with relevant clinical end points based on intended use should be performed. Care must be made in identifying potential biases that could arise in the design or deployment that could potentially exacerbate health care disparities. Postmarket real-world performance should be reported to maintain continued assurance of safety and effectiveness and increase transparency to users and regulatory agencies.[5]

Beyond defining characteristics of high-quality AuI, the position statement also provides a framework for future directions. Effective and ethical development and implementation of AuI will require continuous engagement, education, exploration of privacy and medical-legal issues, and advocacy. Assessing knowledge, expectations, biases, and fears

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Funding sources: None.

Conflicts of interest: This task force has been put together by the American Academy of Dermatology, but the members have not been paid to participate. There are no conflicts of interest.

Accepted for publication June 13, 2019.

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Published online June 25, 2019.

J Am Acad Dermatol 2019;81:998-1000.

0190-9622/$36.00

https://doi.org/10.1016/j.jaad.2019.06.032

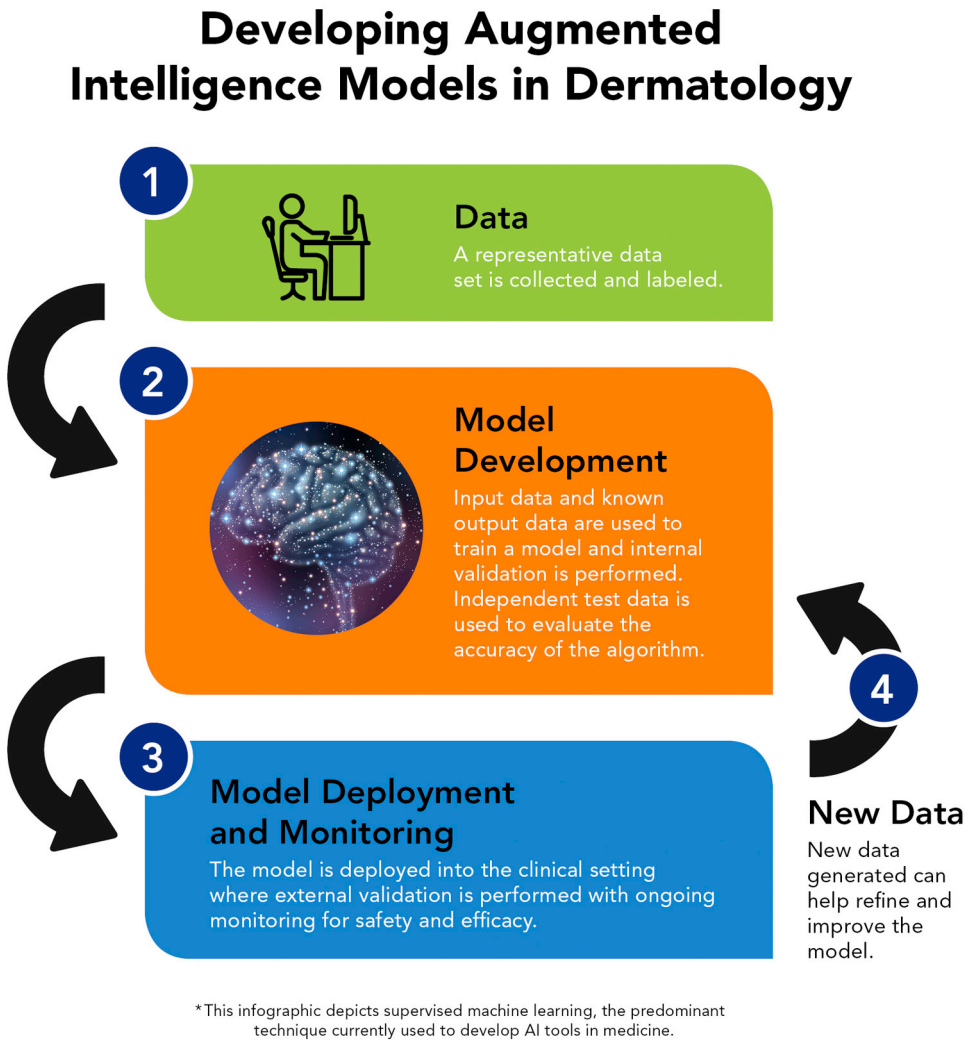

Fig 1. Workflow for developing augmented intelligence models in dermatology.

allow for more efficient development and more effective deployment of AuI technologies. Education and awareness of the promise and potential pitfalls of these technologies are needed for optimal integration in the health care system. For patients and providers, there should be transparency and choice on how their medical information is gathered, used, and stored, and when, what, and how AuI technologies are used in their care process. Issues related to privacy and medical-legal complications are amplified by technology that requires transmission of data beyond the confines of a provider's institution. Protected health information must be managed with effective safeguards, and as with in-person medical care, transparency in consent for data usage is required.

AuI has the potential to transform our experience of health, health care, and wellness. The Academy plans to engage and collaborate with stakeholders and legislative colleagues to create policies that promote AuI that is high quality, inclusive, equitable, and accessible. Through collaboration and research, the Academy strives to guide the design, implementation, and regulation of these technologies and augment care for all.

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