August 28, 2023

Administrator Chiquita Brooks-LaSure
Centers for Medicare & Medicaid Services
7500 Security Blvd
Baltimore MD 21244

RE: Response to CMS Proposed Transitional Coverage for Emerging Technologies (CMS-3421-NC)

Dear Administrator Brooks-LaSure,

We appreciate the opportunity to provide response to the proposed TCET notice.

For more than 20 years, Stanford Biodesign has been bringing the world's most promising minds together to investigate, inspire, and innovate a healthier world for all. We train aspiring innovators in a proven, repeatable process for identifying and screening important unmet health-related needs, inventing new solutions to address them, and developing implementation plans to advance those technologies into patient care. Our trainees work in interdisciplinary teams and are mentored by clinical, industry, and policy experts.

To date, Stanford Biodesign has trained more than 200 fellows in the full-time Innovation Program and an additional 2,500 students. More than 50 companies have been founded based on technologies invented during training at Stanford Biodesign - with many more companies subsequently founded by our trainees - and those technologies have helped millions of people. The biodesign innovation process has been adopted by more than 100 universities and training programs around the world.

Stanford Biodesign has taken the next step in our mission to improve lives and to advance health equity and outcomes by establishing the first and only health policy program specifically centered on the dynamic area of health technology innovation. Our program is led by current and former policymakers, regulators, and innovators.

In 2022, our researchers published a survey-based study "*The Need for Accelerated Medicare Coverage of Innovative Technologies"*, in which respondents stated that it takes an average of 4.7 years and up to 8 years after FDA authorization for nationwide coding, coverage, and payment.[1] In 2023, JAMA Health Forum published our article entitled "*Time From Authorization by the US Food and Drug Administration to Medicare Coverage for Novel Technologies"*.[2] For a cohort of 64 new medical technologies authorized by the FDA between 2016-2019, for which a reimbursement pathway had not already been established, this research found a median time to at least nominal coverage of 5.7 years.

We applaud the Centers' initiative to develop a program like TCET, which based on our research findings and comprehensive experience as innovators and policy researchers is indeed critically needed. We believe we have unique insights into program details that would be most beneficial to patients and small companies working to bring innovative solutions to Medicare beneficiaries and have provided some below but welcome the opportunity to engage further if that could be useful.

Our recommendations are summarized below, and subsequently discussed in greater detail:

1. **CMS should avoid narrow constraints on the proposed TCET pathway.**
    a. CMS should avoid strict annual enrollment caps on the number of nominated technologies within the TCET program.
    b. CMS should clarify how internal resources will be allocated to properly support TCET, identifying how and which resources will be made available.
    c. CMS should allow follow-on devices as part of ongoing TCET CEDs without contributing to annual enrollment caps, if enrollment caps are kept.
    d. CMS should establish clear criteria for nomination selections.
    e. CMS should define a set number of application cycles per year to limit first-come-first-served application bias.

2. **CMS should employ least-burdensome evidence generation and review.**
    a. CMS should consider innovative outcome endpoints that are relevant metrics for new technologies.
    b. CMS should announce the order of publication for future guidance documents to encourage sponsor utilization of identified meaningful clinical endpoints.
    c. CMS should minimize the perceived risk of the Evidence Preview process.

3. **CMS should clarify process timelines and deliverables.**
    a. CMS should clarify the timeline for coding, payment, and benefit category determination reviews to ensure these steps are completed prior to initiation of CED NCDs.
    b. CMS should provide clear off-ramp timelines for TCET coverage including necessary steps to ensure no gaps in coverage.
    c. CMS should allow earlier self-nomination timeframes for TCET beyond the currently proposed 12-month pre-FDA authorization to leverage CMS discussions during early study design.

Detailed Recommendations:

1. CMS should avoid narrow constraints on the proposed TCET pathway.

1a. CMS should avoid strict annual enrollment caps on the number of nominated technologies within the TCET program.

It is appreciated that CMS must always work within resource constraints. However, limiting TCET program enrollment to five innovative technologies preemptively dilutes the impact of the program and introduces further implementation challenges.

Discussion during the August 1st, 2023, TCET listening session suggested that more than five "topics" per year might be considered, yet the analysis CMS uses to determine its capacity for TCET was unfortunately not clarified. During the same call, stakeholders expressed concerns about the limited impact the program would have on beneficiaries and encouraging innovation given TCET's proposed enrollment cap.[3]

Related to the enrollment limits of the TCET proposal, CMS also includes language outlining a potential prioritization scheme for cases in which CMS must pick from multiple eligible technologies.

> *"CMS intends to prioritize innovative medical devices that, as determined by CMS, have the potential to benefit the greatest number of individuals with Medicare."* [4]

Such prioritization may be fraught with unintended consequences, including larger program resource requirements, overlooking technologies that offer substantial clinical and value benefits, and perhaps perverse application incentives. Similar priority mechanisms were implemented by the FDA in previous review acceleration programs such as the Priority Review Program and Expedited Access Pathway Program. In fact, the current Breakthrough Devices Program (BDP) and its provenance stem from underwhelming performance issues encountered during earlier attempts at implementation of priority-based merit.[5] In practice, value-based judgment among technologies is non-trivial. Significant resources are needed to justify comparative evaluations, as noted in value-based health care initiatives.[6]

Another concern of the proposed prioritization is that "potential to benefit" remains unclear. Selecting by "greatest number of individuals" stands to be a missed opportunity for CMS to support innovation in commonly overlooked disease areas or for subpopulations that have historically been excluded from care innovation. These innovators are most likely to need TCET support to reach patients, as fewer patients often translate to smaller market sizing, and thus, fewer investment dollars to withstand the perilous post-FDA-clearance period without a clear reimbursement pathway.

1b. CMS should clarify how internal resources will be allocated to properly support TCET, identifying how and which resources will be made available.

CMS CED studies are large undertakings for manufacturers. Establishing the list of appropriate investigators, locations, governing protocols, approvals from IRB and CMS, database/registry, study funding, patient enrollment, and general clinical practice requires ample detail and resources; completing this process may require 30 or more steps.[7,8]

Medical technology innovators have substantial and justified concern that CED processes may lack the proper resources to effectively design, evaluate, and conclude the evidence generation period efficiently.[9] A track record of ongoing CED programs spanning upwards of 16 years highlights the extreme reality of current policy performance.[10] Meanwhile, manufacturers continue to incur large study costs, which can potentially be unsustainable for smaller manufacturers.

It is encouraging that the TCET program goal of 5 technologies per year will double the number of annual NCDs, but that is not nearly enough. Current NCD processes have witnessed considerable backlog, so it is incumbent upon CMS to provide greater clarity on how and what resources provided during TCET will overcome existing challenges in CED implementation.[3] The TCET proposal stipulates that many collaborative processes will be conducted “as resources allow” including those with both AHRQ and FDA. The lack of clear work requirements expected, especially for inter-agency communication, is concerning as much of TCET relies on joint decision-making.

Towards this goal, CMS should highlight which internal resources will be allocated towards TCET including those from relevant government stakeholders including the Center for Clinical Standards and Quality (CCSQ), FDA, AHRQ, and NIH, as applicable. Publishing clearly defined roles, firm timelines, and the resources necessary to complete them will bolster confidence that TCET possesses sufficient material commitments from CMS. For example, data sharing expectations/criteria between CMS and FDA for TCET-nominated technologies and relevant follow-on technologies may help to address coverage issues or inform more precise outcome endpoints if evidence gaps are identified. Other possibilities may include:

(1) Technology Assessments by AHRQ, (2) convening MEDCAC panels with experts when establishing relevant endpoints and adequate scientific evidence, (3) holding HCPCS work groups to determine proper coding, (4) drafting new delivery and/or payment models with Center for Medicare and Medicaid Innovation (CMMI), (5) collaborative post-market review with FDA, (6) information sharing with NIH including innovative data analysis techniques within biomedical research.

1c. CMS should allow follow-on devices as part of ongoing TCET CEDs without contributing to annual enrollment caps, if enrollment caps are kept.

CMS TCET decisions should extend to similar follow-on technologies authorized with FDA Breakthrough Designation during on-going CED coverage - so long as these follow-on technologies also satisfy remaining TCET eligibility criteria. This decision would be similar to current CMS CED technologies commercialized from various manufacturers and receiving coverage through the same NCD (e.g., leadless pacemakers) and is in-line with CMS' established technology agnostic, categorical approach to coverage decisions.[11]

However, CMS should clarify the guidance for whether coverage through CED is applicable for second-to-market technologies that do not receive a Breakthrough Device designation by the FDA but otherwise have the same intended use as the first-to-market technology (eg: through indication expansion of a 510(k) authorized device). We propose that a manufacturer be allowed to participate in the CED NCD as long as they are also required to perform a study as defined by the same Evidence Development Plan. Such an arrangement should sufficiently address any evidence gaps identified with the first-to-market technology and expand the data evaluable to CMS to make an NCD determination.

Follow-on technologies with sufficiently similar indications for use can rely on Evidence Previews and Evidence Development plans generated during the TCET process and should require minimal additional TCET program resources. Thus, follow-on technologies that have equivalent indications for use to a technology included in the TCET program should not contribute to enrollment caps for the program.

1d. CMS should establish clear criteria for nomination selections.

In determining how technologies are prioritized, CMS states that medical devices will be assessed on their "potential to benefit the greatest number" of Medicare beneficiaries. However, CMS should consider implementing well-established measures of healthcare benefits (e.g., Quality-Adjusted Life Years (QALYs) and Disability-Adjusted Life Years (DALYs)) alongside measures that account for innovative benefits not traditionally derived from current standards-of-care (e.g., procedure efficiency, treatment invasiveness, and Patient-Reported Outcome Metrics (PROMs)).[12,13] Ultimately, the potential impact depends on the size of the population, the expected per-patient impact, and potentially consideration of the likely degree of uptake of the new technology.

By creating a predictable rubric from which to assess emerging technologies, CMS will be able to transparently score devices and build trust with sponsors using justifiable nomination outcomes. Such a rubric may allow CMS to tackle selection dilemmas like the following:

How will CMS choose between a technology that diagnoses a large number of Medicare beneficiaries (e.g., NCD for electrocardiographic service 20.15) versus a technology that treats a small number of beneficiaries (e.g., Transcatheter Edge-to-Edge Repair (TEER) for Mitral Valve Regurgitation 20.33)?

It is important to note that such a rubric should not be based upon functional metrics alone. Consider the follow dilemma:

How will CMS choose between two technologies which treat large numbers of Medicare beneficiaries each of which confer substantial improvements in functional scores; however one introduces a less invasive technology (e.g. Transcatheter Aortic Valve Replacement (TAVR) 20.32) for a disease with a current standard-of-care and the other addresses a currently unmet clinical need (e.g. Percutaneous Left Atrial Appendage Closure (LAAC) 20.34)?

The TCET program would ideally be able to accommodate both technologies, and functional metrics alone may not be sufficient to choose among technologies with high clinical impact relative to current standards-of-care. Additional metrics capable of accounting for patient input and novelty of new technologies in addressing unmet needs are two examples of measurable metrics that should be created to fairly evaluate contributions of innovation in this thought dilemma.

When creating clear criteria for TCET enrollment selection, the public, manufacturers, and other relevant stakeholders should have the opportunity to provide feedback. Collaborative input may ensure greater transparency, accountability, and buy-in during implementation. We support clear CMS evaluation from a combination of established measurable function-specific and innovation-specific metrics when determining total “potential to benefit the greatest number” of Medicare beneficiaries. We will be glad to continue to support CMS in defining these relevant criteria.

1e. CMS should define a set number of application cycles per year to limit first-come-first-served application bias.

Annual rolling application deadlines may perversely incentivize companies to rush submissions at the beginning of the annual period to guarantee opportunity for available TCET enrollment slots. Rolling enrollment may also adversely select by company size and type of innovation due to the ability for more-resourced manufacturers to concurrently prepare regulatory, clinical and TCET applications. Additionally, rolling enrollment may increase administrative burden. If strict annual enrollment caps are retained from the current proposal, CMS should define a set of deadlines for application cycles each year along with the number of technologies CMS anticipates selecting for each cycle.

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2. CMS should employ least-burdensome evidence generation and review.

2a. CMS should consider innovative outcome endpoints that are relevant metrics for new technologies.

Disruptive new technology often challenges conventional treatment for a disease state by providing a less invasive procedure, moving treatment to a lower acuity setting and/or improving patient quality of life, satisfaction, or recovery time. In such instances, patient satisfaction and patient-reported outcome measures (PROMs) are important factors in clinical decision-making and are increasingly desired in health technology assessments. CMS should consider such new measures, even if they historically were not used as primary endpoints for the prior standard of care.

Further, CMS should take a pragmatic approach to including relevant emerging measures, such as PROMs, appreciating they might provide important input even if they have not yet been as comprehensively validated as other established measures, and that their inclusion in CED studies could provide meaningful benefit for methods development and validation.

A case in point are PROMS that have not yet been validated for a specific disease state. For example, the Knee Osteoarthritis (OA) clinical evidence guidance includes patient satisfaction under the LIFE IMPACT outcomes measures, but it is noted that a VAS or Likert scale has not been validated as an outcome measure among OA patients and a minimal clinically important difference (MCID) has not been established. Patient satisfaction is the only unvalidated outcome measure in the prioritized outcome measures. Specific inclusion of at least one PROM among the CMS conclusions will ensure that outcome measures meaningful to patients are systematically collected during evidence generation for a new technology.

2b. CMS should announce the order of publication for future guidance documents to encourage sponsor utilization of identified meaningful clinical endpoints.

Providing a schedule for upcoming Clinical Endpoint Guidance could signal to the innovation community which clinical areas are important to CMS and could warrant an NCD. Product development and FDA authorization processes can stretch six to ten years before a technology and the treatment or diagnosis it facilitates reach sufficient maturity to request an NCD.[14] Thus, the guidance will influence clinical evidence collection for technology already in development and may even catalyze new product innovation. The announcement of a guidance would be an important signal of which clinical areas CMS determines to be of highest need for beneficiaries and a signal of future coverage clarity for innovators and investors alike.

Solicitation of input from Medicare beneficiaries, their physicians as well as stakeholders in the medical technology innovation ecosystem would provide CMS with context on areas of unmet need where Clinical Endpoint Guidance would be helpful and influential. A process that solicits

input on selection criteria could provide CMS with a framework for topic selection that balances clinical outcomes, cost effectiveness, patient satisfaction, and the number of beneficiaries impacted. We believe that evaluation and selection from a wide cross-section of unmet needs yields opportunities for significant patient impact; we encourage CMS to consider such an approach for topic development.

2c. CMS should seek to minimize the perceived risk of the Evidence Preview process.

The Evidence Preview *is a systematic literature review that would provide early feedback on the strengths and weaknesses of the publicly available evidence for a specific item or service.* This description implies that the Evidence Preview will a) summarize the publicly available information in the clinical area and b) identify gaps in the evidence for a specific item or service.

In the situation where CMS and the manufacturer cannot agree on a path forward through CED, the manufacturer may decide to withdraw from TCET with the intent to pursue individual LCDs. As proposed, the Evidence Preview would be shared with the MACs, presumably to support an LCD process as outlined in the Medicare Program Integrity Manual, Chapter 13. We support sharing the Evidence Preview with MACs to summarize the publicly available information in the clinical area, but we do not support sharing CMS's report detailing perceived gaps in evidence. Such a document would be perceived as a roadmap to non-coverage with each individual MAC, an existential threat that would cast the TCET program into a category similar to the NCD process. Today, manufacturers see the NCD process as binary and thus, extremely risky. It is our concern that sharing the gaps in evidence may discourage manufacturers from applying for the TCET program because of this perceived all-or-nothing impact of the Evidence Preview on Medicare coverage either through the TCET and NCD pathway or through the MAC LCD process. Instead, the LCD process already outlines how each MAC is to solicit consultation from experts and optionally convene a Contractor Advisory Committee (CAC) made up of healthcare professionals, beneficiary representatives, and representatives of medical organizations during LCD development. A MAC-by-MAC process of evidence evaluation and consultation would allow the manufacturer to pursue individual LCDs following their exit from the TCET program without the perceived risk of a nationwide coverage decision.

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3. CMS should employ least-burdensome evidence generation and review.

3a. CMS should clarify the timeline for coding, payment, and benefit category determination reviews to ensure these steps are completed prior to initiation of CED NCDs.

By providing a high-level timeline without specific timing for determining benefit category, codes, payment decisions, and length of evidence development plan, any of these individual efforts could lead to delays and gaps in coverage. The complex set of stakeholders contributing to the decision-making for novel technologies, and the significant coordination that will be needed between them

may create challenges. In particular, CMS acknowledged:

> *BCDs are made outside the Coverage and Analysis Group. While they may often be completed within 3 months, in some cases BCDs may take considerably longer. While CMS is working to better align the coverage and BCD review processes, manufacturers should be aware that in some cases benefit category reviews may not be completed within the accelerated timeframes needed for the TCET pathway.*

While it may not be able to predict the timing on any individual technology, CMS should clarify the roles and responsibilities of stakeholders such as AMA and manufacturers in the process and seek methods to publicly report the average time of each step.

3b. CMS should provide clear off-ramp timelines for TCET coverage including necessary steps to ensure no gaps in coverage.

CMS outlines four possible outcomes to the TCET program, including a new NCD, continuation of the CED NCD, a non-coverage NCD, or coverage at the discretion of the MACs, and included a process for a new Evidence Preview and NCD reconsideration that will occur six months prior to the end of the EDP. This process aligns the completion of the TCET coverage period with the NCD reconsideration. However, one outcome of the NCD reconsideration is coverage at the discretion of the MACs. Establishing local coverage determinations, too, includes a request to each MAC plus a series of meetings and open comment before publication of a final decision. Thus, initiating processes to establish post-TCET coverage will necessarily occur after the end of TCET coverage itself, and result in a potential gap in coverage for patients. Considering the length of time required to compile and publish evidence, followed by application and evaluation for LCD, we are concerned that coverage gaps could stretch to years in length or result in variable coverage across administrative regions, threatening the intended positive impact of TCET. Clarification from CMS on the off-ramp timing, especially the conclusion and publication of evidence is warranted.

3c. CMS should allow earlier self-nomination timeframes for TCET beyond the currently proposed 12-month pre-FDA authorization to leverage CMS discussions during early study design.

When designing studies, innovators do their best to provide the information deemed most beneficial to the many stakeholders related to the technology. This includes the FDA, insurers, clinicians, patients, and more. The proposed TCET pathway would involve discussion and determination of clinical outcomes and patient populations to study beyond FDA authorization. However, if CMS were to begin Evidence Preview earlier, CMS could directly contribute to pivotal study development prior to the investigational device exemption. This would facilitate evidence generation for the Medicare subpopulation and evaluation of outcomes that meet the ‘reasonable and necessary’ standards.

Prior research demonstrates that the evidence used for successful evaluation by the FDA and CMS can be quite similar and therefore input from both agencies would be highly beneficial to avoid unnecessary duplication of efforts.[15] Furthermore, by providing insight into critical outcomes measures and patient populations, the time necessary to address evidence gaps during TCET coverage may be reduced. This could result in shorter Evidence Development Plans and a smaller financial drain on CMS resources.

Concluding Remarks:

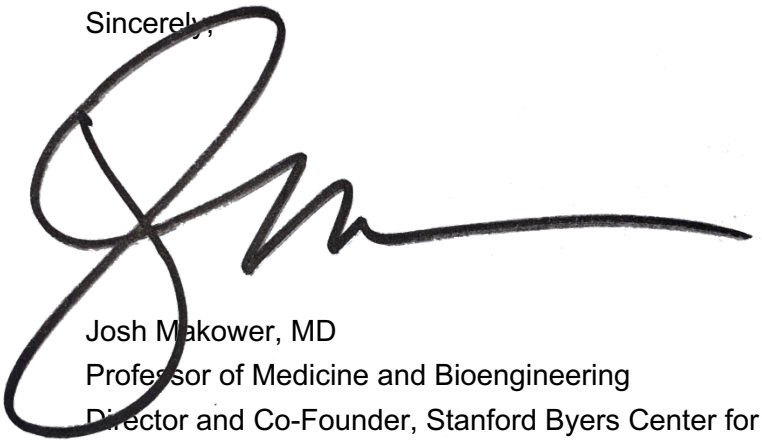
The release of TCET has affirmed CMS' resolve to ensure Medicare beneficiaries timely access to new innovative technologies; we recognize that such program decision-making is not an easy task. TCET, like previous applications of CMS CED processes, could be a promising program to address current gaps in coverage for innovative technologies, and towards incentivizing innovation that meets the triple-aims of healthcare. TCET's magnitude is amplified when considered holistically with LCD process changes towards coverage of Category III codes, the recent publication of a first-in-a-series of Clinical Evidence Guidance, and the stated intent of CMS to update the Innovators Guide to Medicare. However, TCET may be limited by low utilization for a variety of reasons detailed above, diminishing its impact and ultimately requiring further policies.

Most significantly, the currently proposed five-technology annual enrollment cap may explicitly and implicitly exclude many potential sponsors from the proposed program, and the sharing of the gaps in evidence portion of the Evidence Preview to MACs creates the perception of a high-risk process resulting a binary, nation-wide coverage decision. Limitations on access to the TCET program, as well as perceived risks that minimize manufacturer interest, would have the unfortunate impact of further delaying beneficiary access to novel medical technologies and could inhibit innovation on important unmet clinical needs. Thus, to fully realize the promise of TCET, we believe CMS should refrain from placing such strict annual caps on program nominations, initiate earlier evidence development discussions to create a least-burdensome pathway, remove elements which create perceived existential threats to manufacturers that enter the program, and provide clear expectations on program timelines and resources.

We welcome the opportunity to further engage around these topics and others as they pertain to the advancement of medical technology innovation for patient care.

Thank you for your consideration of these public comments.

Sincerely,



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