

Dried Blood Spot Biomarkers for Dementia: A Scoping Review of Analytical Performance, Clinical Applications, and Future Directions

PRESENTER:
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BACKGROUND

Dementia is a global health burden with increasing prevalence. Standard biomarker testing (e.g., CSF, PET) is invasive, expensive, and requires specialized facilities.. Venous blood draws have limitations in cold chain storage and transport. Dried Blood Spots (DBS) and Dried Plasma Spots (DPS) offer minimally invasive alternative with ambient stability, enabling remote collection and reducing costs.

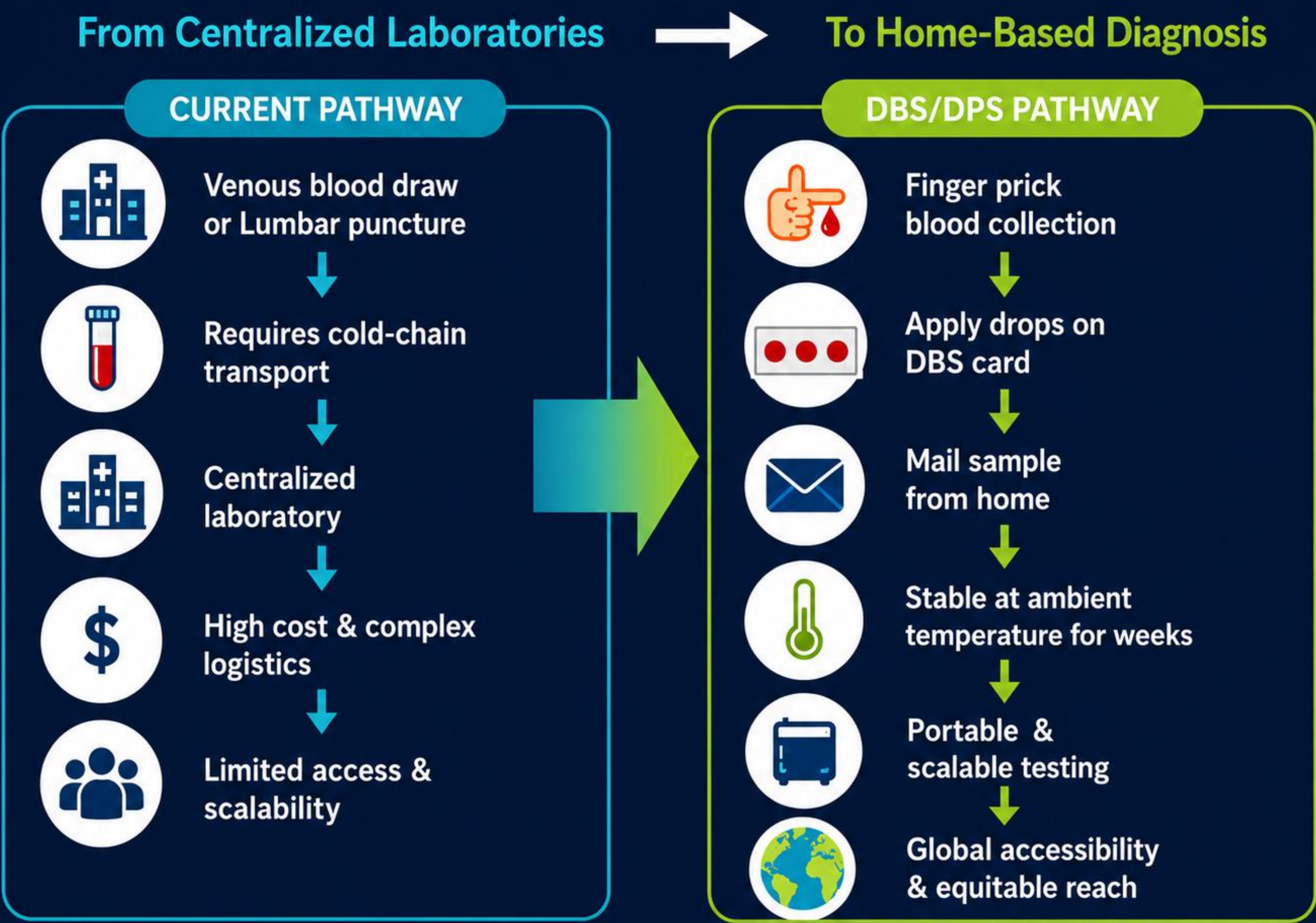
OBJECTIVES

Evaluate dried blood and dried plasma spot technologies as decentralized, minimally invasive alternatives for Alzheimer's disease biomarker detection.

METHODS

Scoping review following PRISMA guidelines, time 2020 – 2025.

Dried Blood Spot Technologies Enable Accessible **Dementia** Biomarker Testing.



TAKE-HOME MESSAGE

With continued optimization and standardization, DBS/DPS technologies could revolutionize biomarker pipelines, transforming dementia research into a truly global, accessible enterprise.

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RESULTS

Out of 708 total studies, eight studies included and reported that reliable detection of :

- Amyloid- β
- Tau
- Apoe4, and
- Transcriptomic signatures

MAJOR INNOVATION

A Single Molecule Array (Simoa) technology applied to dried plasma spots achieved detection thresholds as low as

0.13 pg/mL

for **pTau-181**, a critical advancement for early diagnosis.

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