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#### Title

Improving T2DM Detection in Primary Care–Effectiveness of Active Opportunistic Screening Using Point-of-Care Capillary HbA1c

# **Priority 1 (Research Category)**

Diabetes and endocrine disease

### Presenters

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# Abstract

Context: In Hong Kong (HK), undiagnosed Type 2 Diabetes Mellitus (T2DM) is a significant public health concern due to citizens' self-perceived low susceptibility as early T2DM is asymptomatic. Implementing a better public active screening strategy is crucial. Point-of-care capillary HbA1c (POC-cHbA1c) holds promise as a solution, yet randomized trials assessing its effectiveness as a T2DM screening strategy are scarce, and none have been done in HK.

Objective: To evaluate the effectiveness of 2-step active opportunistic screening using POC-cHbA1c versus venous HbA1c (vHbA1c) in improving T2DM detection among at-risk primary care patients.

Study Design and Analysis: A cluster randomized controlled trial was conducted in 8 General Out-Patient Clinics (GOPCs). 2-step active opportunistic screening [risk factor count (step 1) and HbA1c testing (step 2)] was performed before proceeding to a confirmatory oral glucose tolerance test (OGTT). A mixed-effects logistic regression model was employed to account for the cluster effect.

Setting: 852 at-risk patients were recruited from 8 GOPCs, 2 from each of the 4 participating clusters. They were identified during primary care consultations using consecutive sampling and eligibility screening.

Population Studied: At-risk patients were screened according to criteria of the International Diabetes Federation and HK Reference Framework for Diabetes Care for Adults in Primary Care. Intervention: After step 1, at-risk patients received either POC-cHbA1c testing at intervention clinics or vHbA1c testing at control clinics for step 2. Confirmatory OGTT was offered to those with preliminary HbA1c  $\geq$ 5.6%.

Outcome Measures: 1) Uptake rate of HbA1c testing; 2) proportion of T2DM and pre-DM detected; and 3) the number-needed-to-screen (NNS) to detect one more case with T2DM using POC-cHbA1c versus vHbA1c.

Results: The uptake rate of POC-cHbA1c was higher than vHbA1c (76.0% vs 37.5%; OR=7.06, 95% CI [2.47-20.18], p<0.001). POC-cHbA1c detected proportionately more T2DM (4.2% vs 1.4%) and pre-DM (11.8% vs 6.9%) cases. There were higher odds of POC-cHbA1c detecting T2DM and pre-DM combined (OR=1.99, 95% CI [1.01-3.95], p=0.048). NNS was 61 for POC-cHbA1c to detect one more T2DM patient versus vHbA1c.

Conclusions: Active opportunistic screening using POC-cHbA1c had higher uptake and overall detection rates of T2DM plus pre-DM among at-risk primary care patients compared to vHbA1c. It shows promise as an effective T2DM screening strategy.

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