Relationship between purchase price and quality of oral antidiabetic drugs in sub-Saharan Africa: the DIABDAF study

6ER-031
Barcelona Spain
March 2026

Auxane Thery, Roland N'Guetta, Philippe Henri Secretan, Mouhamadoul Mounir Dia, El Bou Isselmou Boukhary Ould, Lola Grandjean, Pauline Cavagna, J P Empana, Maimouna Ndour Mbaye, Xavier Jouven, Marie Antignac

Contact : auxane.thery@aphp.fr

What was done ?

Post hoc analysis of the DIABDAF study, a large multinational study assessing quality of antidiabetics in Sub-Saharan Africa (SSA)

Why was it done ?

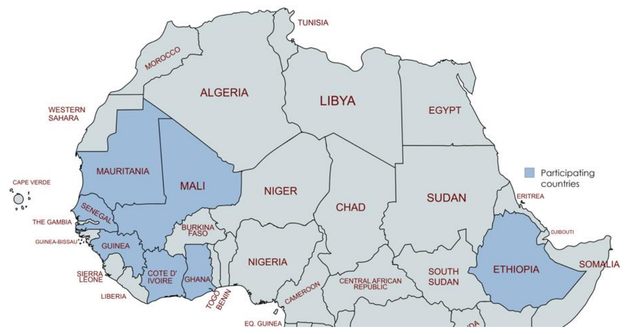
Falsified and **substandard** medicine are a major challenge in **Sub-Saharan Africa**, and diabetes is a growing concern

Objective : examine the **relationship** between Oral Antidiabetic Drug's (OAD) **price** of purchase and their **quality**

How was it done ?

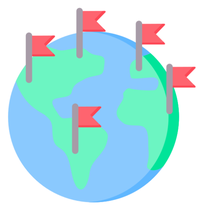
1.Sample collect

- **Drugs :** those frequently prescribed in SSA
  - 1 biguanide : metformin
  - 3 sulfonylureas : glyburide, gliclazide, glimepiride
- **Location :**
  - Licensed pharmacies and street markets
  - Capital and border cities
  - 7 countries



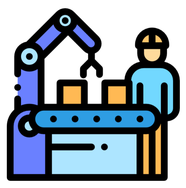
2. Data collection

✓ **Place of purchase data**



✓ **Drug data :** price of purchase, quality of drugs (assessed in laboratory)…

✓ **Production data**



3. Statistical analysis

- **Relationship between price of purchase and drug quality**

Price : converted into int$ thanks to Purchsing Power Parity (PPP) factor

Quality criterias : according to
  - Content of pharmaceutical active ingredient (APIC)
  - Impurity levels
  - Both (composite criterion)
- Model used : Mixed linear effect model (2 random effects : pharmaceutical batch and country)
- R 4.4.3

What was achieved ?

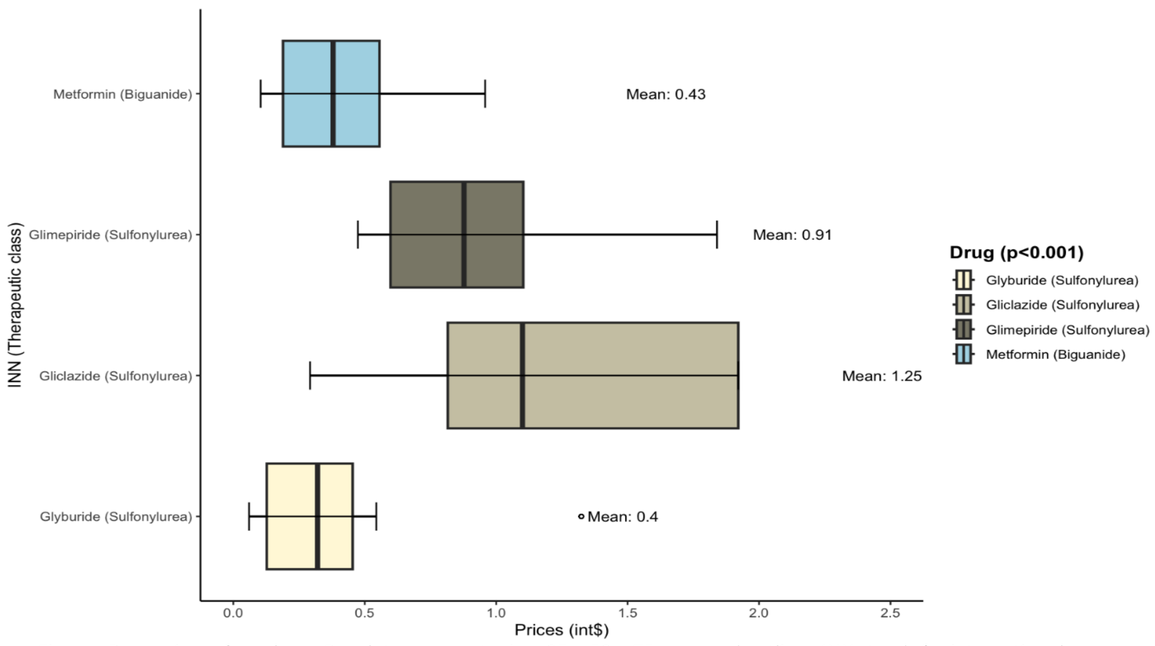


Figure : Drug prices of purchase. Boxplots represent min, p25, p50, p75, max and outliers. INN stands for international non-proprietary name. P value derived from linear mixed-effects model with random intercepts for country and pharmaceutical batch.

✓ 610 samples from 7 countries were collected
✓ Prices ranged from 0,06int$ to 1,92int$
  ✓ Mean prices of generics : 0,57±0,40 int$
  ✓ Mean prices of princeps : 0,92±0,54 int$

In univariate analysis :

✓ Price was **significantly associated** with quality of AOD according to : **APIC (p=0,004) and composite criterion(p=0,003)**
✓ It wasn't according to level of impurity alone (p=0,869)

$ Poor quality OAD were less expensive than good quality-ones

In multivariate analysis :

Price remained associted with quality according to the composite criteria (p=0,003)
Price was associated to **drug status** (p<0,001) (generics are less expensive) and to **INN** (p<0,001) (metformin and glyburide are less expensive)

What is next ?

This large study of 610 samples supports a price–quality association of OADs in SSA, influenced by drug, status and manufacturing origin. An article is to be published this year.