

Availability and prices of insulin, delivery devices and blood glucose testing in Mali 2020-2022

Access to quality-assured affordable insulin and glucose monitoring devices is crucial for all people living with diabetes and use insulin. This issue has been recognized globally by the World Health Organization and others, as noted by the 2021 resolution on diabetes and the committed target of countries to ensure ‘100% of people with type 1 diabetes have access to affordable insulin and blood glucose self-monitoring by 2030’.

From 2020 to 2022, the NGO Santé Diabète has monitored the availability and prices of insulin, delivery devices (insulin syringes and pen needles) and blood glucose self-monitoring devices (meters, strips) in selected facilities and households in Mali. This briefing note provides key findings from the monitoring.

Why monitor?

The purpose of this monitoring is to provide an overall understanding of the prices and availability of insulin, supplies and glucose self-testing devices both at the facility and household level. Monitoring at the household level is included because it provides an invaluable opportunity to provide a more complete picture of how people are accessing and paying for their insulin. Ongoing monitoring can be a helpful tool to show governments where issues with supply might be and can be a useful tool for advocacy for both prices and availability. In Mali the findings have already been used to map the country's insulin and diabetes self-monitoring supply needs, improve the supply chain through analysis and improvement of procurement procedures, and advocate for the integration of diabetes (including treatment and monitoring supplies) into universal health coverage.

Data collection

From 2020-2022, data was collected four times from facilities (public and private sector) and households with a person using insulin in six regions of the country – see Table 1.

Table 1. Numbers of facilities and households monitored

Regions	Date of data collection and reference (Year/Period)	Facilities		Households	
		Public sector	Private Pharmacies	Type 1 diabetes	Type 2 diabetes
Bamako, Koulikoro, Sikasso, Segou, Bougouni, Kayes	Jun-Aug 2020 (Y1/P1)	29	28	143	80
	Sep-Nov 2020 (Y1/P2)	29	30	140	117
	Jan-Mar 2021 (Y2/P1)	29	29	134	111
	Apr 2022-Jan 2023 (Y3/P1)	14	9	118	116

Key findings

A. Insulin

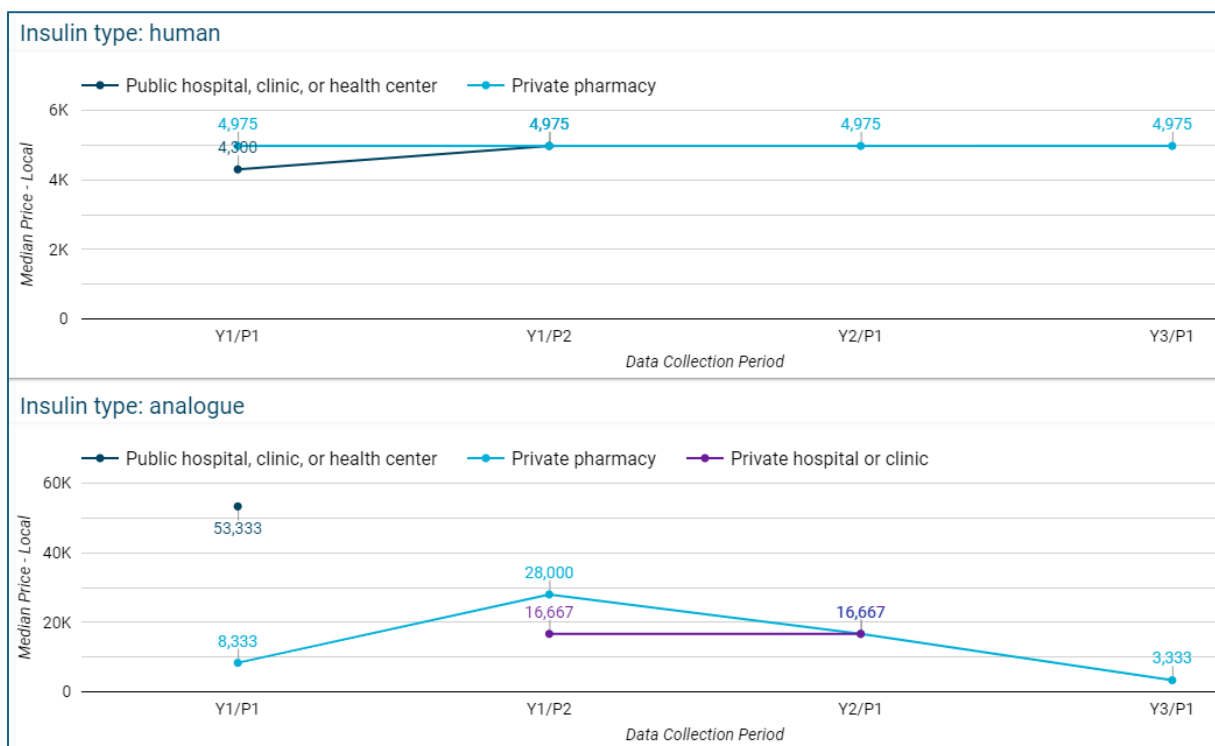
Over the three years, only human insulin in vials was available in facilities i.e. regular (Actrapid®), NPH (Protophane®) and premixed (Mixtard®). In the public sector, availability of any human insulin was poor ranging from 0% (2021) to 50% (2022). In private pharmacies, over time the availability of all three types of human insulins was 100%.

In this same time period, availability of insulin in the home was very good, ranging from 95%-100%. Most households used human insulin. Various reasons were given for insulin not being in the home, including costing too much.

About half the households got free insulin as they were part of a donation programme. For those paying out-of-pocket, in the last 3 monitoring periods the median full price of a vial of human insulin (Actrapid, Protophane or Mixtard) was 4975 CFA whether purchased in public or private facilities (see Figure 1). A small number of households used analogue insulins (in prefilled pens). The median price, when purchased from private pharmacies, decreased from 28333 CFA (2020) to 3333 CFA (2022). However, these prices are based on few points as analogues were rarely used in the households surveyed.

In 2022, 3% of households (2 with Type 1 diabetes and 6 with Type 2 diabetes) had rationed their insulin use because they did not have the money to purchase it. This was an improvement from 14% in 2021.

Figure 1. Households: median full price, human and analogue insulins (1000IU), by place of purchase, over time



B. Availability insulin versus four oral NCD medicines

Data was also collected in facilities for four commonly used NCD medicines as a comparator to insulin ie. metformin 500mg, glibenclamide 5mg, captopril 50mg and atorvastatin 20mg (all tablets). In the public sector in 2022, the availability of human insulin (50%) was higher than the four oral medicines eg. metformin had the highest availability but was only 36%. In private pharmacies, availability of the four NCD medicines was similar to that of insulin in 2020-21 (90%-100%). However, in 2022 there was a sharp drop for all four medicines (eg. 43% for metformin) whereas insulin availability remained at 100%.

C. Insulin syringes

In the public sector, the availability of insulin syringes increased dramatically from a low of 3% in 2021 to 64% in 2022 – see Table 2. By contrast, availability dropped in private pharmacies from 100% to 78%. The median price of the cheapest syringe in public sector facilities has fallen over time from 175 CFA (2020) to 125 CFA (2022). A similar price drop was seen in private pharmacies.

All of the households who use insulin syringes had them in the home. Nearly all obtained them for free from an NGO (through a donation program) or paid out-of-pocket in private pharmacies. The median price for one insulin syringe dropped from 175 CFA in 2020 to 125 CFA in 2022.

D. Pen needles

Across the three years, no facilities (public or private sector) had needles for use with prefilled insulin pens available on the day of data collection (see Table 2). This was unsurprising as none stocked insulin prefilled in pens.

Of the few households who use pen needles, all had them in the home. In 2020 and 2021, the majority of households purchased pen needles from private pharmacies whereas in 2022, most were obtained for free from an NGO (also part of a donation program). The median price in private pharmacies over time was 100 - 200 CFA each, but this was based on few price points.

Table 2. Availability and median prices of insulin delivery devices, over time

	Insulin Syringes					Pen Needles		
	Public sector		Private pharmacy		Households	Public sector	Private pharmacy	Households
	Avail	Median price* CFA	Avail	Median price* CFA	Median price CFA	Avail	Avail	Median price CFA
2020/ Period 1	28%	150	100%	200	150	0%	0%	100
2020/ Period 2	7%	175	100%	175	175	0%	0%	200
2021	3%	n/a	100%	175	150	0%	0%	200
2022	64%	125	78%	125	125	0%	0%	100

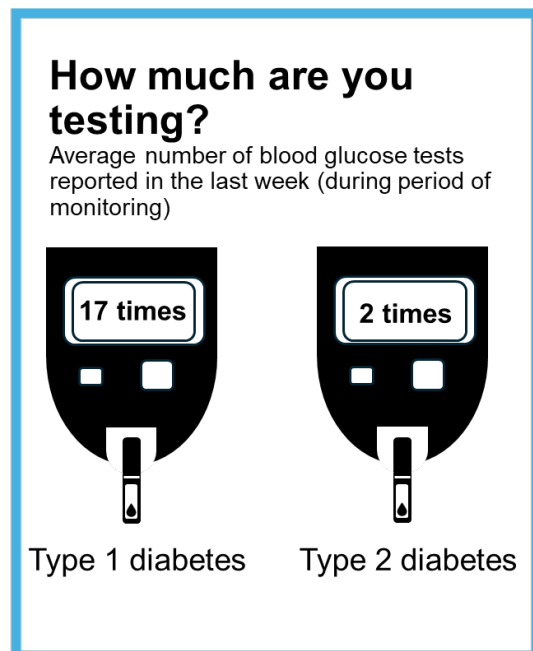
*Median price of the cheapest insulin syringes in each facility. Prices are for 1 syringe or 1 pen needle

E. Blood glucose testing

Over the three years, the percentage of people who had at least one blood glucose test in the last month fell from 98% to 93%. In 2022, 14 people with type 1 diabetes and 2 people with type 2 had not tested in the last month. The average number of tests in the last week were 17 (type 1 diabetes) and 2 (type 2 diabetes), of which 61% were self-tests. People being tested in public sector facilities, using a meter and strip, paid 1000 FCA per test.

F. Blood glucose meters

In 2022, availability of meters was 0% in public sector facilities. Private pharmacies had 67% availability. Only Accu-Chek® brand was sold, priced between 13500 - 15000 CFA per meter. Prices have fallen slightly over the years, from a high of 20000 CFA in 2020.



G. Blood glucose test strips

Are test strips available?
2022 availability



Public facilities:
Unavailable

Private facilities:
67%

Test strips were unavailable from public facilities. In 2022, availability was 67% in private pharmacies. The median cost per strip was 340 CFA, an increase of 34% from 2021.

Over the three years, households with type 1 diabetes had 92-100% availability of strips in the home. Availability in households with type 2 diabetes has improved over the years, to 95% in 2022 (see Figure 2). In 2022, 70% of households received free strips (nearly all were through a donation programme). Over the three years, households paying out-of-

pocket paid a median price of 300-320 CFA per strip – see Figure 3.

Figure 2. Households with test strips in the home by type of diabetes, over time

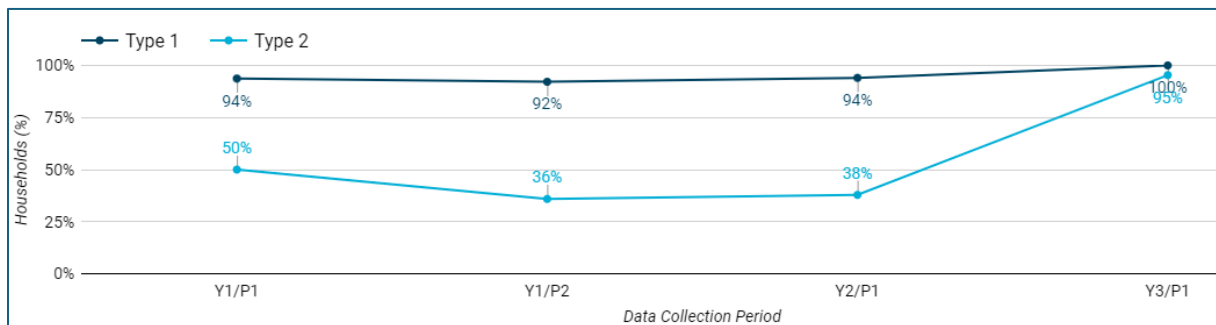
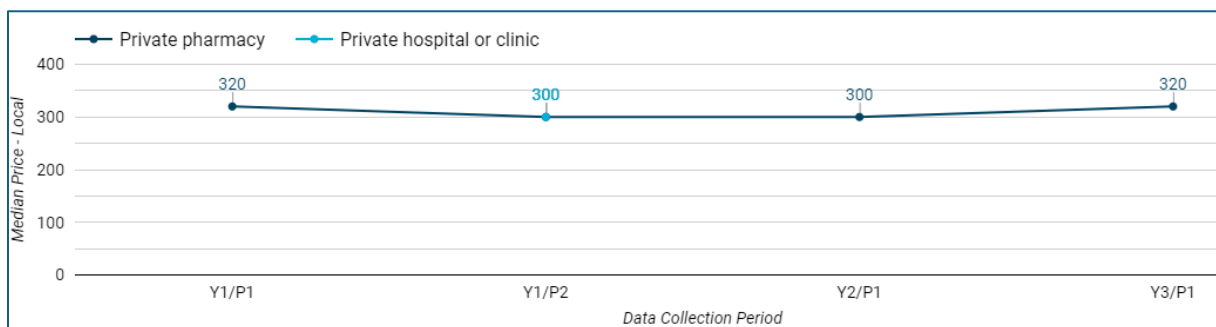


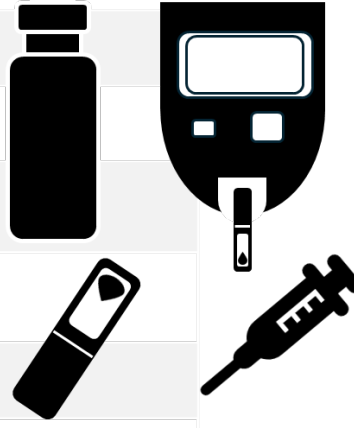
Figure 3. Households: median full price for 1 test strip by place of purchase, over time



Next steps

- Present the results of this study to the heads of diabetes associations in the Bamako, Kayes, Ségou and Timbuktu regions;
- Involve diabetes associations in future data collections; and
- Support the associations in evidence-based advocacy actions based on the results of the next data collection.

Median Out of Pocket Prices: Mali 2022

1 blood glucose meter	14500 CFA	
1 vial human insulin	4975 CFA	
1 blood glucose test in a facility (public sector)	1000 CFA	
1 blood glucose test strip	320 CFA	
1 insulin syringe	125 CFA	
1 insulin pen needle	100 CFA	