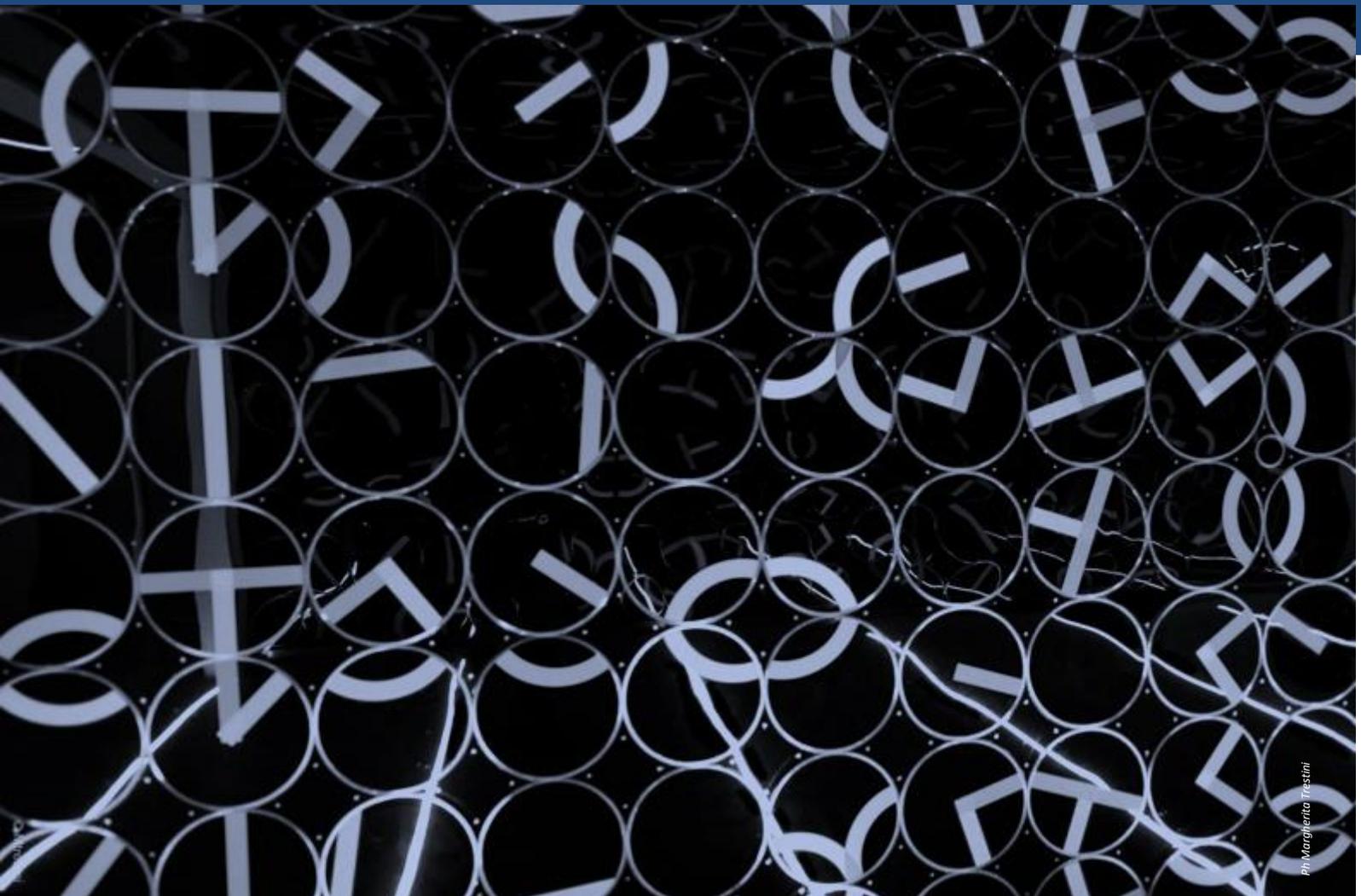# Primary Health Care Innovation in Nigeria – Quantitative Phase Report

by the Pro-Poor Growth and Promotion of Employment in Nigeria Programme-SEDIN
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1. Acronyms

CesTII	Centre for Innovation Indicators
CHAI	Clinton Health Access Initiative
CHEW	Community Health Extension Worker
DOI	Diffusion of Innovation
EPI	Expanded Programme on Immunisation
GDP	Gross Domestic Product
HIV	Human Immunodeficiency Virus
LGA	Local Government Authority
MDCN	Medical and Dental Council of Nigeria
MDGs	Millennium Development Goals
NACETEM	National Centre for Technology Management
NARD	Nigerian Association of Resident Doctors
OECD	Organisation for Economic Co-operation and Development
PHC	Primary Health Care
PRIMASYS	Primary Health Care Systems
WHO	World Health Organisation

2. Executive Summary

This report includes:

- ✓ the findings from the semi-structured survey among the stakeholders as well as the quantitative one among the Nigerian Primary Health Care (PHC) health workers;
- ✓ the results of the online questionnaire;
- ✓ the outcome of the online validation workshop conducted with innovation and healthcare experts

The results of the quantitative phase are consistent with the results of the previous two phases: the desk research and the qualitative research. From the quantitative and the stakeholders surveys, it emerged that in many of the PHC centres from the five states included in the survey, namely Edo, Lagos, Niger, Ogun, and Plateau, **63% PHC personnel have between 1-20 patients on a typical day**.

From the quantitative and the stakeholders' surveys, it **emerges that key benefits of PHC are accessibility and closeness to homes of patients**. However, it is important to note that patients were not included in the study. This survey was purely conducted among the PHC Healthcare Personnel and Stakeholders.

The challenges faced by the PHCs in Nigeria were topped by **lack of basic facilities** such as laboratories and lack funding with 21% and 16% of the stakeholders mentioning them first respectively. Similarly, the PHC personnel interviewed in the quantitative stage 29% and 23% 1st mentioned lack of basic facilities such as laboratories and lack funding respectively.

When it comes to awareness and use of technologies it emerged that it is better to segment the market not into hardware and software but into "**Rudimentary/Traditional Technologies**" and "**Emerging Technologies**".

"Rudimentary/Traditional Technologies" are type of innovations that have been in existence for over a decade, while "Emerging Technologies" may have been in existence for long but have gained popularity within the decade. For example, robotics is in existence for over two to three decades but have gained popularity in healthcare in this decade. Drones have been used in other areas for over a decade but have gained popularity in dropping medical essentials recently. Also, in "Emerging Technologies" there are new technologies such as Internet of Things (IoT) in healthcare which is quite new and in its early adoption stage globally and so is Artificial Intelligence (AI).

The use of technology in Nigerian PHC seems to be limited to "Rudimentary/Traditional" Technology with many healthcare personnel associating use of technology to use of computers/laptops as well as mobile phones. Not many are aware of "Emerging Technologies" such use of drones in medical supplies, robotics in surgery, AI, Metaverse, IoT among others.

In addition, the **awareness of the above-mentioned "Emerging Technologies" is low among the stakeholders interviewed as well as among the PHC personnel**. Many of the stakeholders as well as the healthcare personnel interviewed are aware of use of computers/laptops use in their facilities. **In addition, the use of mobile phones, their related services as well as apps has a significant awareness among the respondents**.

There is very little awareness on use "Emerging Technologies" if any. Many of the technological adopted and are currently used in the Nigerian PHC are "Rudimentary/Tradition".

With these findings, there is a huge potential in the market for establishing partnerships and launching better versions of the already existing technological innovation using computers and mobile phones platforms, since the health care personnel is well aware of their existence and usage at the PHC level.

3. Background Information

Quantitative and Semi-Structured Phase: the background

The quantitative and semi-structured phase is the final portion of the study. This phase commenced on the 20th of February 2023 and ended on the 23rd of March 2023 and it was divided into sections. In the first section a semi-structured questionnaire was administered among 62 Stakeholders and Opinion Formers. In the second phase 160 Healthcare Personnel working in PHC facilities were interviewed in the defined catchment areas: including the following five states; Edo, Lagos, Niger, Ogun, and Plateau.
In addition, this phase targeted two types of respondents: Stakeholders and Healthcare Personnel.
✓ Stakeholders were subjected to a semi-structured questionnaire. In this report, the terms semi-structured and stakeholders are used interchangeably.
✓ The Healthcare Personnel were interviewed using a structured questionnaire. In this report, the terms healthcare personnel and quantitative are used unchangeably.

Sampling

Stakeholders, Semi-Structured Questionnaire Sampling

A semi-structured questionnaire was administered among 62 Stakeholders and Opinion Formers from the five states mentioned above. These 62 respondents were selected purposively using a screener. The targeted Stakeholders and Opinion Formers had to be familiar with the following issues:
- ✓ Nigeria Primary Health Care
- ✓ ICT Innovation in Primary Health Care
- ✓ Medical Related Issue
- ✓ Nigeria Health Policies
- ✓ States Health Policies

Below is a table indicating Stakeholders and Opinion Formers sample distribution across the five states.

Gender Split
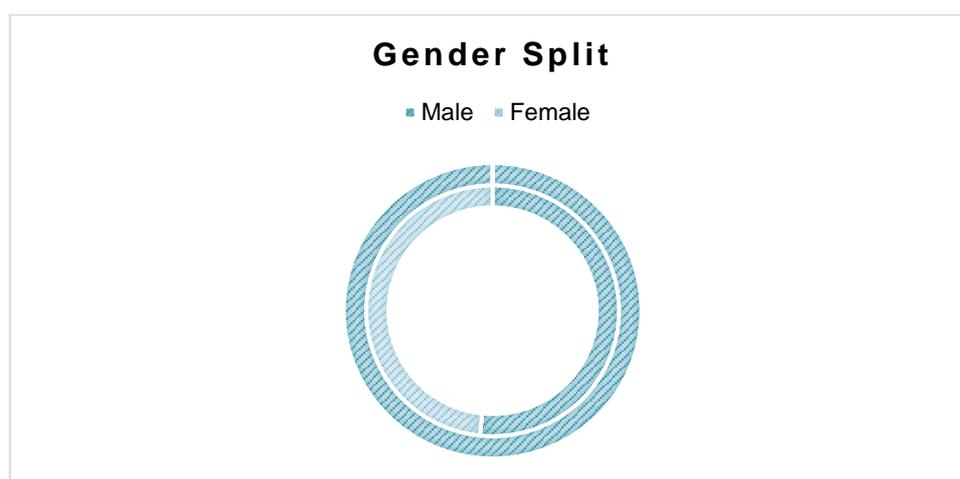
■ Male ■ Female

	Total	Gender	
		Male	**Female**
	62	32	30
Edo	21%	13%	30%
Lagos	19%	22%	17%
Niger	19%	25%	13%
Ogun	21%	16%	27%
Plateau	19%	25%	13%

Respondents' Profile (Sample n = 62)

Sample n=62

Age	Total Sample	Gender Male	Female
	62	32	30
18-24	2%	0%	3%
25-34	31%	31%	30%
35-44	45%	53%	37%
45-54	23%	16%	30%

Familiarity with the topic

Profession

	Total	Male	Female	Edo	Lagos	Niger	Ogun	Plateau
	62	32	30	13	12	12	13	12
Technology Journalist/Writer	1	0	1	1	0	0	0	0
Technology and Patent Lawyer	1	1	0	0	1	0	0	0
Civil Society/NGO/Development Partners	1	0	1	0	0	0	1	0
Religion Leader (Christian)	1	1	0	0	0	1	0	0
Religion Leader (Muslim)	1	1	0	0	0	0	0	1
PHC Managers of Facilities	5	4	1	1	1	1	1	1
Academic: Lecturer	1	1	0	1	0	0	0	0
Business/Technology Entrepreneur	1	0	1	0	1	0	0	0
Doctors/Nurses/Midwives/CHW	38	16	22	8	7	8	8	7
IT/Procurement/Accountants working in PHC	5	3	2	1	1	1	1	1
Civil Servant (Federal) Working in Health	3	3	0	0	0	1	1	1
Civil Servant (State) Working in Health	3	1	2	1	1	0	1	0
Others	1	1	0	0	0	0	0	1

Health Care Quantitative Structured Questionnaire Sampling

The sample was drawn from the list of all PHC in the Five States where the study took place. From the list, only one PHC per Ward was interviewed

Respondents' Profile: Healthcare Personnel (Sample n = 160)

		Total	Gender Male	Female
Sample (Absolute)		160	84	76
Sample (Percentage)		100%	53%	48%
18-24	Absolute	2	0	2
	Percentage	1%	0%	3%
25-34	Absolute	46	21	25
	Percentage	29%	25%	33%
35-44	Absolute	71	41	30
	Percentage	44%	49%	39%
45-54	Absolute	34	17	17
	Percentage	21%	20%	22%
55-64	Absolute	6	4	2
	Percentage	4%	5%	3%
Over 65	Absolute	1	1	0

Respondents Age Group and Gender

Sample States Distribution
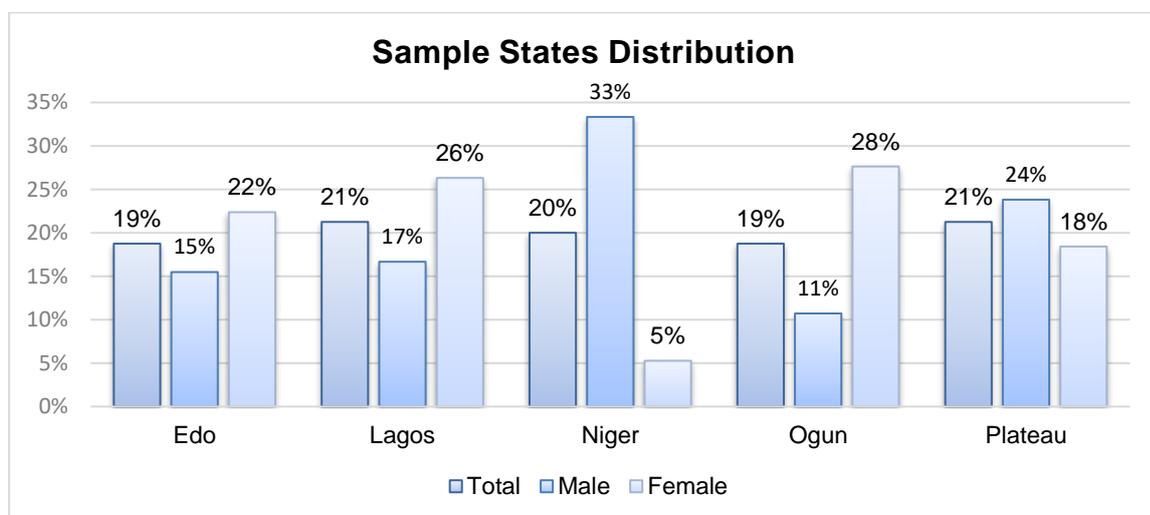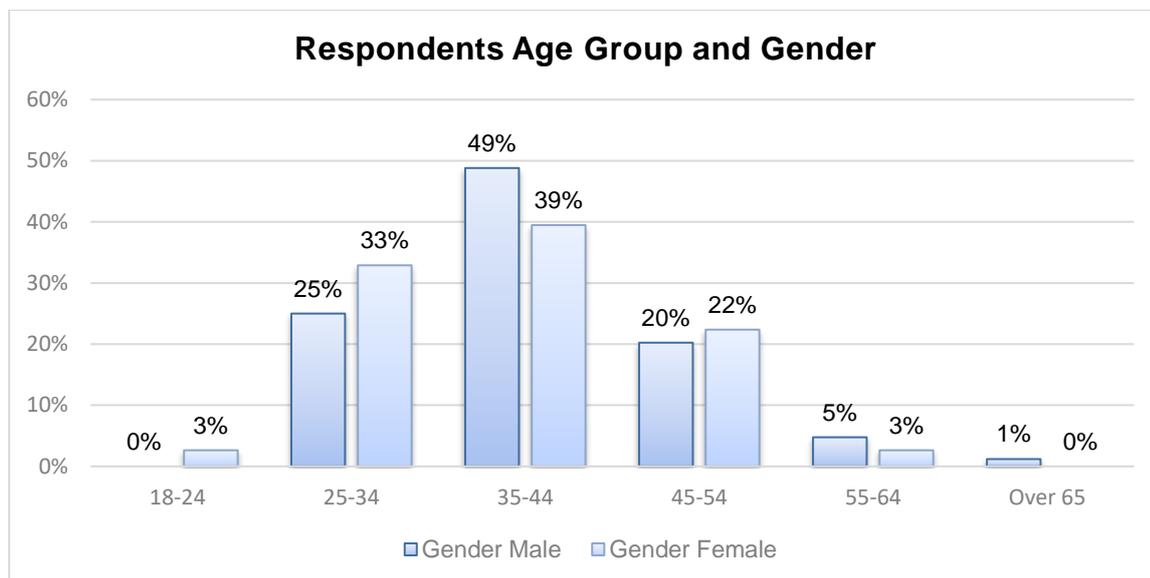
Specialty Distribution

Specialty	Total	Gender		State				
		Male	Female	Edo	Lagos	Niger	Ogun	Plateau
Specialty	160	84	76	30	34	32	30	34
Doctors	8%	12%	3%	7%	6%	6%	10%	9%
Nurses and Mid-Wives	27%	14%	41%	27%	35%	25%	23%	24%
Phamacists	8%	10%	5%	7%	6%	13%	7%	6%
Community Health Worker	32%	24%	41%	33%	29%	31%	33%	32%
Laboratory	19%	31%	7%	17%	18%	19%	23%	21%
IT	3%	6%	0%	3%	3%	3%	0%	6%
Procurement	1%	2%	0%	0%	3%	3%	0%	0%
Finance	3%	1%	4%	7%	0%	0%	3%	3%

Primary Health Care Public/Private Distribution

PHC Facility Ownership	Total	Gender		State				
		Male	Female	Edo	Lagos	Niger	Ogun	Plateau
	160	84	76	30	34	32	30	34
Public	65%	60%	71%	67%	62%	59%	60%	76%
Private	35%	40%	29%	33%	38%	41%	40%	24%

Primary Health Care Private Ownership Distribution

Private Facilities Ownership	Total	Gender		State				
		Male	Female	Edo	Lagos	Niger	Ogun	Plateau
	56	34	22	10	13	13	12	8
NGO/Civil	13%	9%	18%	10%	23%	0%	17%	13%
Christian Owned	20%	6%	41%	40%	31%	8%	17%	0%
Muslim Owned	7%	12%	0%	0%	0%	15%	0%	25%
Individual	41%	50%	27%	40%	15%	54%	50%	50%
Private Company/Business	20%	24%	14%	10%	31%	23%	17%	13%

This qualitative research is the first phase of the primary research on Primary Health Care Innovation in Nigeria. This qualitative phase has been carried out to ascertain some of the insights discovered in the secondary research phase (See Primary Health Care Innovation in Nigeria - Desk Research Report), carried out in late 2022.

From the desk research, we found out that the Nigerian PHC system lacks adequate health personnel. In addition, the state of the PHC facilities is wanting. Whereas it is assumed that deploying technology might help the matter and fill in the gap for the country to meet its Millennium Developments Goals (MDGs), without primary research, the desk research did not answer that question adequately.

The desk research highlighted that there is some infrastructure on the ground, in Nigeria, to support innovative ideas. Moreover, in other developing countries, where technology has been used, there has been improvement in primary healthcare delivery. It is therefore credible to assume that technological innovation can be used to advance PHC in Nigeria on different fronts. For example:
- ✓ In training
- ✓ Patient Management and Monitoring
- ✓ Disease Surveillance
- ✓ In reaching remote patients
- ✓ In delivering essentials such as drugs

4. Main Findings

4.1   Number of Patients Served in a Typical Day

The research results show that many of the health personnel working in the Nigerian PHC serve **between 1 and 20 patients.** This accounts for the 63% of the respondents we interviewed. In addition, only 7% serve 41 to 50 patients while only 9% serve over 50 patients on a typical day. Interestingly, in Ogun and Plateau States, many of the health personnel interviewed serve 1-20 patients accounting for 86% and 87% respectively. In the same two states, the health personnel hardly serve more than 41 patients on a typical day.
The picture is summary of the number of patients served in a typical day.

Number of Patients Served in typical day	Gender				State		
	Male	Female	Edo	Lagos	Niger	Ogun	Plateau
Total	76	73	27	32	30	29	31
1-20 Patients	62%	64%	48%	41%	53%	86%	87%
21-40 Patients	18%	22%	44%	19%	13%	14%	13%
41-50 Patients	9%	5%	4%	13%	20%	0%	0%
Over 50 Patients	11%	8%	4%	28%	13%	0%	0%

Number of Patients Served in typical day

1-20 Patients	63%
21-40 Patients	20%
41-50 Patients	7%
Over 50 Patients	9%

In the PHC facilities, many of the health personnel serves 1 to 20 patients accounting for the 63% of the people we interviewed. In addition, only 7% serves 41 to 50 patients while only 9% serves over 50 patients on a typical day.

Interestingly, in Ogun and Plateau States, many of the health personnel we interviewed serves 1-20 patients accounting for 86% and 87% respectively. In the same two states, the health personnel hardly serve more than 41 patients on a typical day.

4.2   Advantages and Benefits

According to the Stakeholder (Semi-Structured Survey) Nigerian PHC Key Advantages and benefits are related to Accessibility and Availability i.e.
   ✓   It is accessible
   ✓   Close to my home and available medical care
In addition, offering **immunisation services** was also perceived as a key benefit with a mention of 42% of the stakeholders interviewed.

	1st Mention	Other Mentions	Total
Free	3%	16%	19%
Accessible	34%	24%	58%
Close to my home	11%	21%	32%
Available medical care	15%	31%	45%
Offer Immunization Services	13%	29%	42%
Open 24 hours	3%	15%	18%
Good for the vulnerable members of the society such as the old, and young	13%	10%	23%
Offers pre- and post-natal services	5%	19%	24%
Educate the public on health matters	3%	27%	31%

The PHC Health Personnel also perceive **accessibility** as a key benefit although they rated it lower than the stakeholders at 34%. Surprisingly unlike the stakeholders of whom 42% though offering immunisation services as a benefit, only 6% of the healthcare personnel though the same was a benefit.

		Gender		State				
	Total	Male	Female	Edo	Lagos	Niger	Ogun	Plateau
	160	84	76	30	34	32	30	34
Free	18%	12%	24%	30%	15%	13%	27%	6%
Accessible	34%	30%	39%	40%	29%	19%	50%	35%
Close to my home	7%	6%	8%	0%	12%	13%	0%	9%
Available medical care	8%	12%	4%	0%	15%	13%	7%	6%
Offer Immunization Services	6%	6%	7%	3%	9%	3%	3%	12%
Open 24 hours	14%	20%	7%	3%	9%	34%	10%	12%
Good for the vulnerable members of the society such as the old, and young	9%	8%	9%	13%	6%	6%	0%	18%
Offers pre- and post-natal services	1%	1%	1%	3%	0%	0%	0%	3%
Educate the public on health matters	2%	4%	0%	3%	6%	0%	0%	0%
Do community work	1%	0%	1%	0%	0%	0%	3%	0%
First aid before going to hospital	1%	1%	1%	0%	3%	0%	0%	3%

Whereas the stakeholder scored the Open 24 Hours attribute at only 3%, the quantitative respondents gave the same attribute 14%

Therefore, in summary, the Nigerian PHC advantages and benefits are related to Accessibility and Availability i.e.
- ✓ It is accessible
- ✓ Close to my home and Available Medical care
- ✓ Available Medical Care
- ✓ Open 24 Hours

4.3   Challenges faced by Nigerian PHCs

Stakeholders (1st Mention)

According to 21% of the Stakeholders interviewed mentioned 1st, lack of basic facilities such as laboratories is one of the challenges facing Nigerian PHCs. The other prominent challenge is lack of finance, mentioned 1st by 16% of the stakeholders. Lack of Personnel and lack of well-trained personnel was spontaneously mentioned as a challenge by 11% and 8% of the stakeholders respectively. Lack of basic facilities such as laboratories was mentioned as a challenge by 25% of the male respondents while 17% of female thought so too. Lack of Finance was mentioned by 20% of the female while only 13% of the Males mentioned it as a challenge. Lack of basic facilities such as laboratories was also mentioned by 33% of the respondents from Niger and 25% of those from Plateau. This means lack of basic facilities such as laboratories was more prominent in the Northern States. The table below summarizes the main challenges facing the Nigerian PHC.

Table of Challenges, 1st Mention (Stakeholders)

	Total	Gender		State			
		Male	Female	Edo	Niger	Ogun	Plateau
Lack of Personnel	11%	13%	10%	15%	0%	15%	17%
Lack of well-trained personnel	8%	6%	10%	15%	8%	15%	0%
Lack of basic facilities such as laboratories	21%	25%	17%	23%	33%	15%	25%
Lack of Finance	16%	13%	20%	23%	8%	8%	8%
Lack of enough information on service	2%	3%	0%	8%	0%	0%	0%
Few Services	5%	3%	7%	0%	17%	8%	0%
Poor Service delivery	5%	6%	3%	0%	8%	0%	0%
Lack of awareness of role of PHC among the public	2%	3%	0%	0%	0%	8%	0%
Lack of Electricity/blackouts	6%	6%	7%	8%	0%	8%	0%
Not the best for emergency services	8%	6%	10%	8%	8%	8%	17%
Lack of bed for admission	6%	6%	7%	0%	8%	0%	8%
Cultural Barriers such as belief that traditional medicine is better	5%	3%	7%	0%	8%	15%	0%
Others	5%	6%	3%	0%	0%	0%	25%

Also find below the table with other mentions on challenges facing Nigerian PHC.

Table of Challenges, Other Mentions (Stakeholders)

	Total	Gender		State			
		Male	Female	Edo	Niger	Ogun	Plateau
Sample	62	32	30	13	12	13	12
Lack of Personnel	19%	19%	20%	8%	17%	23%	33%
Lack of well-trained personnel	11%	13%	10%	23%	0%	23%	8%
Lack of basic facilities such as laboratories	27%	22%	33%	31%	17%	46%	33%
Lack of Finance	39%	44%	33%	38%	33%	62%	33%
Lack of enough information on service	8%	13%	3%	8%	8%	15%	8%
Few Services	11%	13%	10%	8%	8%	15%	8%
Poor Service delivery	11%	13%	10%	23%	0%	8%	17%
Lack of awareness of role of PHC among the public	13%	6%	20%	8%	8%	31%	0%
Lack of Electricity/blackouts	19%	19%	20%	46%	8%	23%	17%
Not the best for emergency services	13%	16%	10%	8%	0%	31%	17%
Lack of bed for admission	18%	22%	13%	8%	0%	31%	25%
Cultural Barriers such as belief that traditional medicine is better	5%	3%	7%	15%	0%	8%	0%

Healthcare Personnel (1st Mention)

According to the Healthcare personnel interviewed in the quantitative stage, 29% 1st mentioned lack of basic facilities such as laboratories as a challenge followed closely by lack of finance which was the 1st mentioned by 23% of the quantitative respondents. 33% of those interviewed in Ogun mentioned Lack of basic facilities such as laboratories first, followed closely by Lagos where 32% mentioned it first. The lack of finance was mentioned first by 28% of the females we mentioned with only 19% of the male respondents mentioning it. Lack of personnel and lack of well-trained personnel was mentioned 1st as a challenge facing the Nigerian PHC by 16% and 11% of the healthcare personnel we interviewed. 30% of those interviewed in Edo though mentioned lack of Finance 1st as a challenge, 33% of those interviewed in Ogun mentioned lack of Finance 1st as a challenge. The table below summarises the 1st mentions of the challenges facing the Nigerian PHC.

Table of Challenges, 1st Mention (Healthcare Personnel)

		Gender		State				
	Total	Male	Female	Edo	Lagos	Niger	Ogun	Plateau
	160	84	76	30	34	32	30	34
Lack of Personnel	16%	13%	18%	10%	12%	13%	17%	26%
Lack of well-trained personnel	11%	13%	8%	23%	6%	6%	3%	15%
Lack of basic facilities such as laboratories	29%	30%	29%	23%	32%	28%	33%	29%
Lack of Finance	23%	19%	28%	30%	29%	22%	13%	21%
Lack of enough information on service	3%	5%	0%	0%	3%	6%	0%	3%
Few Services	4%	5%	3%	3%	0%	9%	3%	3%
Poor Service delivery	5%	7%	3%	0%	0%	6%	20%	0%
Lack of awareness among the public	2%	2%	1%	3%	3%	3%	0%	0%
Lack of Electricity/blackouts	4%	4%	4%	0%	9%	3%	3%	3%
Not the best for emergency services	2%	1%	3%	0%	3%	0%	7%	0%
Lack of bed for admission	2%	1%	3%	7%	0%	3%	0%	0%
Other	1%	0%	1%	0%	3%	0%	0%	0%

Also find below the table with other mentions on challenges facing Nigerian PHC according to the healthcare personnel.

Table of Challenges, Other Mentions (Healthcare Personnel)

		Gender		State				
	Total	Male	Female	Edo	Lagos	Niger	Ogun	Plateau
Sample	160	84	76	30	34	32	30	34
Lack of Personnel	21%	18%	25%	20%	18%	19%	17%	32%
Lack of well-trained personnel	21%	23%	18%	13%	15%	41%	17%	18%
Lack of basic facilities such as laboratories	32%	32%	32%	33%	35%	31%	20%	38%
Lack of Finance	38%	40%	34%	17%	32%	44%	50%	44%
Lack of enough information on service	18%	18%	17%	13%	9%	22%	3%	38%
Few Services	19%	10%	29%	7%	26%	9%	23%	26%
Poor Service delivery	19%	21%	17%	10%	24%	28%	17%	18%

Lack of awareness among the public	14%	18%	9%	3%	3%	28%	10%	24%
Lack of Electricity/blackouts	25%	25%	25%	7%	38%	22%	33%	24%
Not the best for emergency services	22%	19%	25%	10%	38%	3%	33%	24%
Lack of bed for admission	16%	17%	14%	10%	21%	16%	7%	24%
Others	3%	2%	3%	0%	0%	0%	13%	0%

When asked what the most pressing challenges in the Nigeria PHC are, there were a lot of similarities between what the stakeholders (Semi-Structured) and healthcare personnel (Quantitative) said. In this regard, the top four most pressing account for 55% of all challenges. According to the stakeholders, few services are offered by the PHC and poor services are not as prominent with only 3% of the respondent mentioning that they were the most pressing.

The most pressing challenges – Stakeholder (Semi – Structured)

Total	62
Lack of Personnel	11%
Lack of well-trained personnel	10%
Lack of basic facilities such as laboratories	18%
Lack of Finance	16%
Few Services	3%
Poor Service delivery	3%
Lack of awareness of role of PHC among the public	5%
Lack of Electricity/blackouts	8%
Not the best for emergency services	6%
Lack of bed for admission	8%
Cultural Barriers such as belief that traditional medicine is better	6%
Other Mentions	3%

The top four most pressing challenges in the Nigerian PHC account for 55% of the challenges

Interestingly, Few Services offered by the PHC and Poor services are not as prominent with only 3% of the respondent mentioning that they were the most pressing

Two most pressing challenges according to the healthcare personnel (Quantitative) were **lack of basic facilities such as laboratories** was mentioned by 34% of the healthcare personnel as the most pressing, by 18% as 2nd most pressing and by 8% as 3rd most pressing. Lack of finance was mentioned 22% of the healthcare personnel interviewed as most pressing challenge facing the Nigerian PHC, while 21% and 16% mentioned it as the 2nd and 3rd most pressing. Lack of personnel was mentioned by 15%, 11% and 16% as the most pressing challenge, 2nd most pressing and third most pressing respectively. The number for stakeholders and the healthcare personnel may differ, but they maintain the same order of most pressing challenges in the Nigerian PHC.
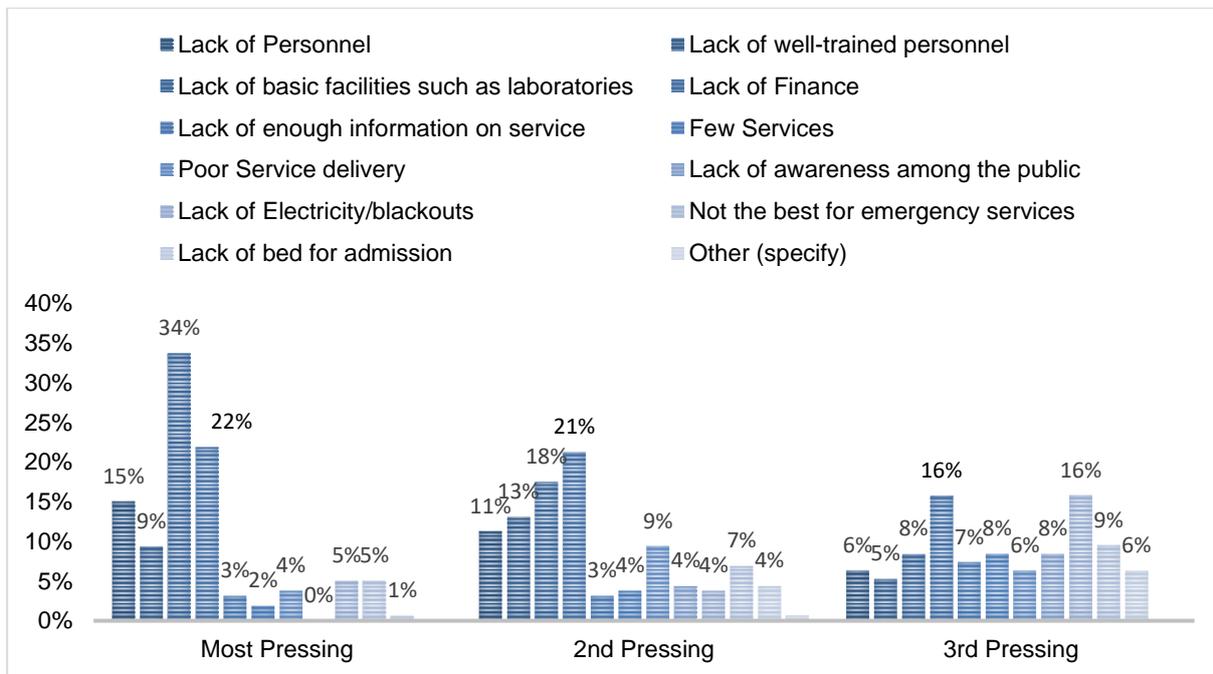
When asked what the most pressing challenges in the Nigeria PHC are, there were a lot of similarities between what the stakeholders (Semi-Structured) and healthcare personnel (Quantitative) said.

In conclusion, the **stakeholders and the health personnel agree that lack of finance and basic facilities such as laboratories as main challenges facing the Nigeria PHC**. Furthermore, both stakeholders and the Healthcare personnel agree that lack of personnel and lack of well-trained personnel was the 2nd a key challenge.

4.4   Awareness of Technological Innovations in the Nigerian PHC

Spontaneous awareness
When asked what comes to mind when the term technological innovation in the Nigerian primary healthcare system the Healthcare personnel mentioned "Rudimentary/Traditional Technologies" such as **mobile phones SMS Services where 21% had it as their 1st mention.** Another association with the term technological innovation in the Nigerian Primary healthcare system is with **mobile phone apps**. There was **very little awareness levels for the "Emerging Technologies" such Machine Learning which was only mentioned first by 2%** of the quantitative respondents. The Internet of Things in Healthcare is the most prominent of the "Emerging Technologies" innovation as highlighted below in green. However, this high awareness of IoT in healthcare may have been caused by lack of knowledge on what it was and may have been confused with the usage of internet in the healthcare system. Machine learning also had a significant moderate awareness but like IoT, it could be because they did not understand what it was.

Awareness of hardware
Healthcare personnel awareness of hardware is no different from that from the stakeholders as shown in the table below. There is **high awareness level among "Rudimentary/Traditional Technologies" such as computers/laptops at 66%, mobile phones at 53%.** Wearable such as blood pressure monitors also had a high awareness level at 46%. Digital Diagnostics had moderate awareness at 26%. On the other hand, "Emerging

Technologies" such as Robotics and Drones have low awareness 1% and 6% respectively. Interestingly, awareness of tablets among females is low with 14% compared to males with 31% of the respondents saying they are aware of its use in the Nigerian PHC. In addition, on wearables, 54% of the females are aware of its use in the Nigerian PHC, compared to 39% of male respondents who had similar responses. Apart from the above-named variations, the awareness levels of technological innovations hardware do not vary much across gender and states as shown in the table below.

		Gender		State				
	Total	Male	Female	Edo	Lagos	Niger	Ogun	Plateau
Computers/Laptops	66%	69%	62%	43%	79%	78%	67%	59%
Mobile Phones	53%	55%	51%	23%	41%	72%	60%	68%
Tablets	23%	31%	14%	13%	9%	50%	20%	24%
Wearables such blood pressure monitors	46%	39%	54%	43%	44%	31%	70%	44%
Digital diagnostics	26%	21%	30%	17%	59%	19%	20%	12%
Drones, i.e., in delivery of medical supplies	6%	8%	3%	0%	6%	13%	10%	0%
Robotics in surgery among others	1%	1%	1%	0%	3%	0%	3%	0%
Don't know/don't know more	8%	7%	8%	17%	6%	3%	0%	12%

Awareness of Platforms, Applications and Software
The table below summarises the top of mind for the term technological/ innovation in the Nigerian primary healthcare system.

	1st mention	2nd mention	3rd mention	4th mention	5th mention	6th mention
Telemedicine/telemonitoring	6%	5%	8%	7%	4%	0%
e-medicine/e-health	11%	5%	11%	10%	0%	6%
Mobile Phones SMS Services	22%	18%	8%	7%	4%	3%
Mobile Phones Apps	21%	26%	7%	8%	6%	8%
Drones	1%	2%	1%	0%	1%	2%
Artificial Intelligence	4%	3%	1%	4%	2%	6%
Digital platforms i.e., digital health	6%	3%	6%	3%	8%	5%
Online/Internet	10%	8%	13%	9%	8%	8%
Health Care Data Bases	4%	6%	6%	3%	11%	16%
Specialized Software	1%	3%	4%	2%	6%	8%
Big Data	1%	0%	0%	0%	4%	2%
Internet of Things in the Healthcare	6%	8%	4%	9%	7%	6%
Machine Learning	2%	1%	4%	2%	6%	2%
e-training for medical personnel	1%	4%	8%	9%	7%	10%
Blockchain	1%	0%	0%	1%	0%	0%
Virtual reality (metaverse)	0%	0%	0%	1%	1%	0%
Other	0%	0%	0%	0%	0%	2%
Don't know/don't know more	4%	8%	18%	27%	26%	17%

The scenario is not different among the stakeholders in the semi-structured questionnaire, the awareness is limited to "Rudimentary/Traditional Technologies" innovation. The awareness
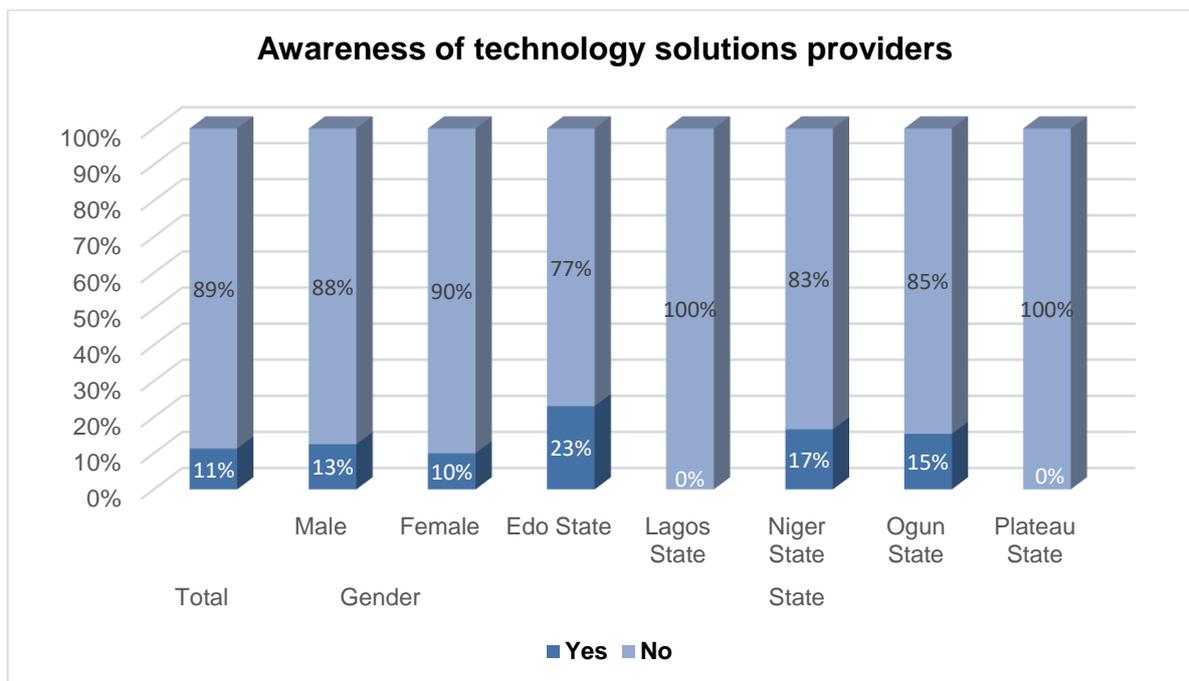
levels for technological innovation in the Nigerian PHC do not have many variations among males and females. Similarly, the Stakeholders' awareness levels of solutions, platforms, and software at the PHC followed the same trend as that of the hardware with little awareness of emerging technological innovations in healthcare. Below is a table with the awareness levels across gender and states. "Rudimentary/Traditional Technologies" such as mobile phones SMS Services and mobile phones Apps have the highest awareness of technological innovation in the Nigerian PHC at 48% and 31% respectively. As mentioned earlier, the modest awareness of IoT, maybe due to the fact the respondents did not know what it was and may have confused it with the use if the internet. In addition, **online/Internet and healthcare data bases had significant awareness levels of 27% and 26% respectively**. **What is surprising is that Telemedicine/telemonitoring and e-medicine/e-health had low levels of awareness among the stakeholders interviewed at 6% and 11% respectively**. See the table below for more details.

	Total	Gender	
		Male	**Female**
Telemedicine/telemonitoring	6%	3%	10%
e-medicine/e-health	11%	9%	13%
Mobile Phones SMS Services	48%	**56%**	**40%**
Mobile Phones Apps	31%	25%	37%
Digital platforms i.e., digital health	5%	0%	10%
Online/Internet	27%	28%	27%
Health Care Data Bases	26%	25%	27%
Specialized Software	6%	6%	7%
Internet of Things in the Healthcare	11%	6%	17%
Machine Learning	2%	0%	3%
e-training for medical personnel	5%	6%	3%
Don't know/don't know more	21%	19%	23%

In Summary, it is true to say that the awareness of the technological innovations in the Nigerian PHC among the stakeholders and healthcare personnel is rudimentary with very limited and almost no awareness of some of the emerging technological innovations. When technological innovations are mentioned many of the respondents think about computer/laptops and mobile phones. The same goes for solutions and platforms where computer-associated platforms have an upper hand. The emerging technologies such as drones, machine learning, robotics have low awareness as part of technological innovations in the PHC level in Nigeria.

Stakeholders' awareness of technological solutions provider in Nigerian PHC
There is very little awareness among the Stakeholders of companies that provide technological solutions in the Nigerian PHC, as indicated in the figure below.

Awareness of technology solutions providers

Currently there are several technological innovations in the market. Respondents were asked if they were aware of selected existing technological innovations, the levels are really low as shown below. Out of the existing innovations platforms, 41% of the healthcare personnel are aware of Health Connect 24×7, while 40% are aware of LifeBank. Only 9% are aware of iWello and Heliumhealth.

Technology solutions		Yes	No
Health Connect 24×7		41%	59%
Tremendoc		16%	84%
CribMD		14%	86%
iWello		9%	91%
Medsaf		24%	76%
LifeBank		40%	60%
ChekkitApp		23%	77%
Heliumhealth		9%	91%
Safermom		28%	73%

Association of the Technological Innovation in the Nigerian Primary Healthcare System

The term technological innovation in the Nigerian primary healthcare system is mostly associated with computers and laptops where 43% of the Healthcare Personnel mention it first when asked "*Can you tell what comes into mind when you hear technological/ innovation in the Nigerian Primary Health Care System*?" In addition, computers and laptops are a 2nd mentioned by 22% of the 160 Healthcare personnel interviewed. **Simply put, the 71% of the healthcare respondents associate technological innovation in the Nigerian Primary Health Care System to use of computers and laptops.** The association of the term technological innovation in the Nigerian primary healthcare system with **mobile phones is only mentioned 1st by 19% of the healthcare personnel.** Wearables such as blood pressure monitors and digital diagnostics are mentioned by 14% and 11% of the healthcare personnel w interviewed and scored high in the 1st and 2nd mentions compared to the association of tablets hear technological/ innovation in the Nigerian primary healthcare system. See the table below for more details.

	1st mention	2nd mention	3rd mention	4th mention	5th mention	6th mention
Computers/Laptops	49%	22%	9%	4%	4%	2%
Mobile Phones	19%	27%	12%	9%	8%	13%
Tablets	3%	9%	24%	12%	14%	5%
Wearables such blood pressure monitors	14%	19%	19%	12%	9%	4%
Digital diagnostics	11%	16%	11%	15%	19%	5%
Drones, i.e., in delivery of medical supplies	1%	4%	8%	4%	4%	18%
Robotics in surgery among others	2%	1%	4%	7%	6%	11%
Other	0%	0%	0%	0%	2%	5%
Don't know/don't know more	1%	3%	14%	37%	34%	38%

4.5   Usage and adoption of technology innovations in the Nigerian PHC

Perceived Frequency of Usage of Technological Innovation in the Nigerian PHC
According to the stakeholders (Semi-structured) there is **more usage of technological innovation among privately owned PHCs compared to the public ones**. Only 5% of the Stakeholders interviewed feel that privately owned PHCs never used technological innovations. Also, 26% feel that the Private PHCs rarely use. Comparatively, when it comes to public PHCs, 11% of the interviewed stakeholders feel public PHCs never use technological innovation. In addition, 53% of the stakeholders feel that public PHC rarely use technological innovations. Furthermore, 40% of the stakeholders feel that private PHCs sometimes use technological innovations, while **29% stakeholders feel that private PHCs always use technological innovations.** On the other hand, only 6% of the stakeholders feel that public PHCs sometimes use technological innovations. In addition, only 3% of the interviewed stakeholders feel that public PHC always use technological innovations. It is important to note that the healthcare personnel frequency of usage is based on the "Rudimentary/Traditional Technologies" innovations such as computers and mobile phones apps and services and has nothing to do with emerging technologies since we found out that there was not adoption of the said emerging technologies such as big data, machine, learning, robotics etc.
The Respondents (PHC Healthcare personnel) use the adopted technology mainly daily as indicated by the blue bar. There is also significant use of technology weekly, while monthly usage is low comparatively. See the Figure 24 below.
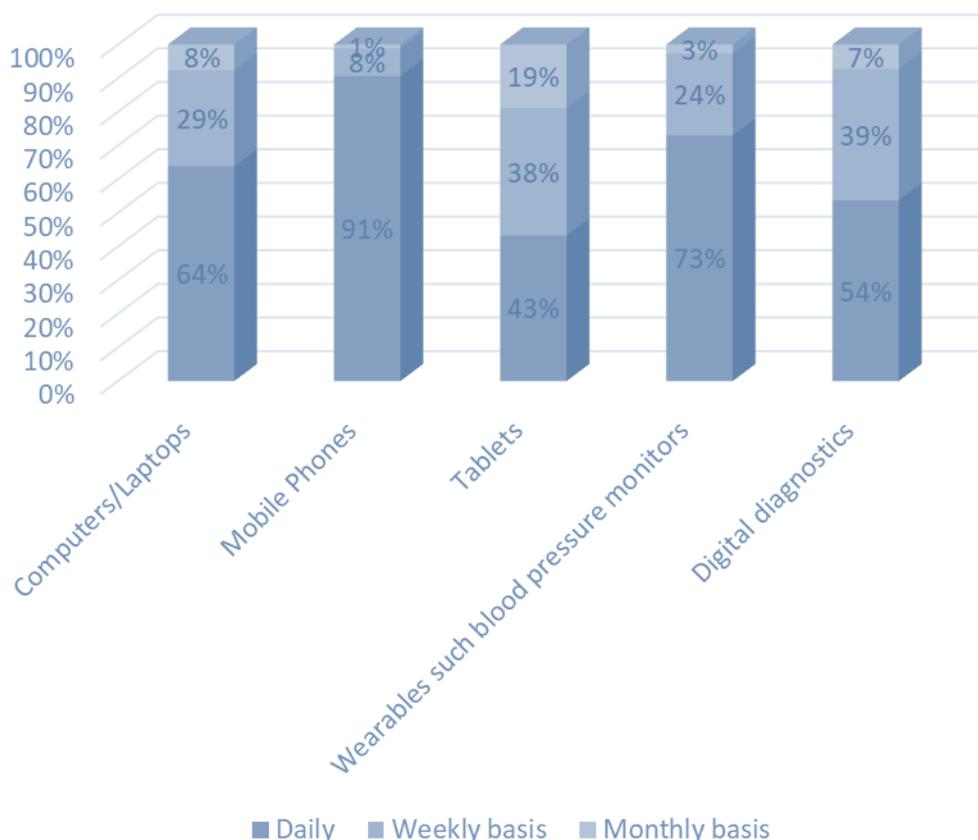
Then it comes to healthcare personnel usage of platforms, solutions and software, **mobile phones SMS services and online/Internet are highly used daily with 85% and 77% respectively using them daily.** In addition, **76% and 71% use healthcare databases and mobile phones Apps** respectively. Another innovative solution used by healthcare personnel is digital platforms i.e., digital health, with 67% claiming to use it daily. What catches the eye is the high claim of usage of Internet of Things in the Healthcare and Machine learning. This high number could be because they do not know what internet of things is and confused it with usage of traditional internet. The daily frequency of use of 63% is therefore due to the lack of knowledge on what IOT in healthcare is, an indication of low know-how of emerging technology. This is so for the score given for machine learning. See the figure below which contradicts what we see from the data. This is a **sign of a lack of adequate knowledge on technological innovation,** which is the high score of machine learning as highlighted in yellow which is inconsistent with what has been recorded all along. This means that there is limited information on emerging technological innovation among the PHC personnel.

	Daily	Weekly basis	Monthly basis
Telemedicine/telemonitoring	41%	47%	12%
e-medicine/e-health	40%	50%	10%
Mobile Phones SMS Services	85%	13%	2%
Mobile Phones Apps	71%	19%	10%
Drones	0%	0%	0%
Artificial Intelligence	0%	0%	0%

Digital platforms i.e., digital health	67%	20%	13%
Online/Internet	77%	16%	7%
Health Care Data Bases	76%	12%	12%
Specialized Software	29%	43%	29%
Big Data	0%	0%	0%
Internet of Things in the Healthcare	63%	30%	7%
Machine Learning	13%	13%	75%
e-training for medical personnel	13%	38%	50%
Blockchain	0%	0%	0%
Virtual reality (metaverse)	0%	0%	0%

4.6   Likelihood of Technological Adoption

The **likelihood of adoption of technology seems extremely likely for "Rudimentary/Traditional Technologies" such as computers and laptops**. **Mobile phones hardware and apps as well as the internet.** However, emerging technologies have low likelihood of adoption. For example, in the figure below, only 3% of the stakeholders feel that it is extremely likely that drones would be adopted. In the same breath, only 5% of the healthcare personnel interviewed feel that Artificial Intelligence (AI) is extremely likely to be adopted.

Likehood of Technology Adoption
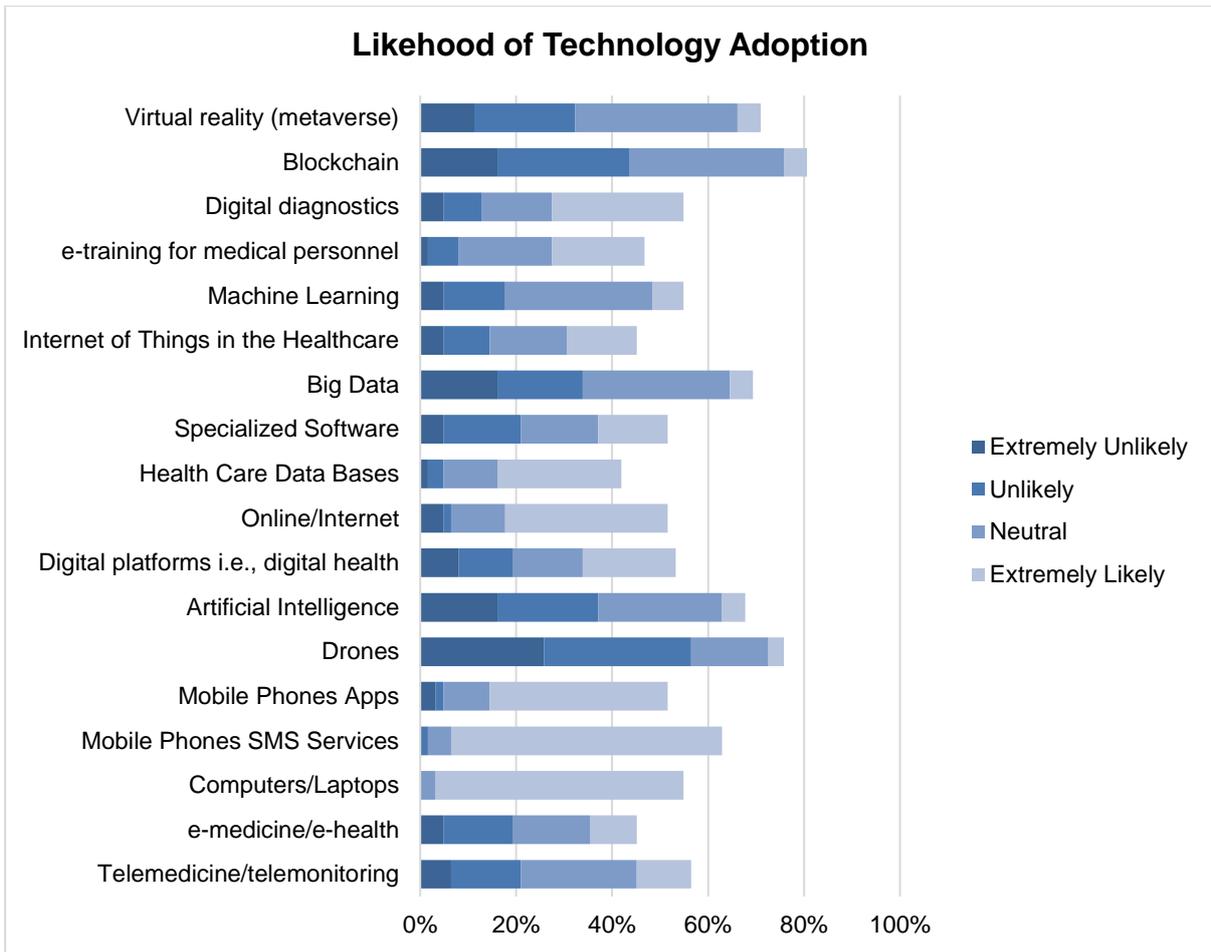
Hardware that the State or Government would likely adopt at the Nigerian PHC Level

39% of healthcare personnel interviewed feel either the Federal or the State Government would likely adopt computers and laptops. In the first mention, very few healthcare personnel interviewed see the Federal or State Governments adopt the emerging technologies with only 3%, 6% and 8% feeling the adoption of drones mentioning it in the 1st, 2nd and 3rd mentions respectively. In addition, in the first mention, only 2% mention the likelihood of the Federal and State Governments adopting drones.
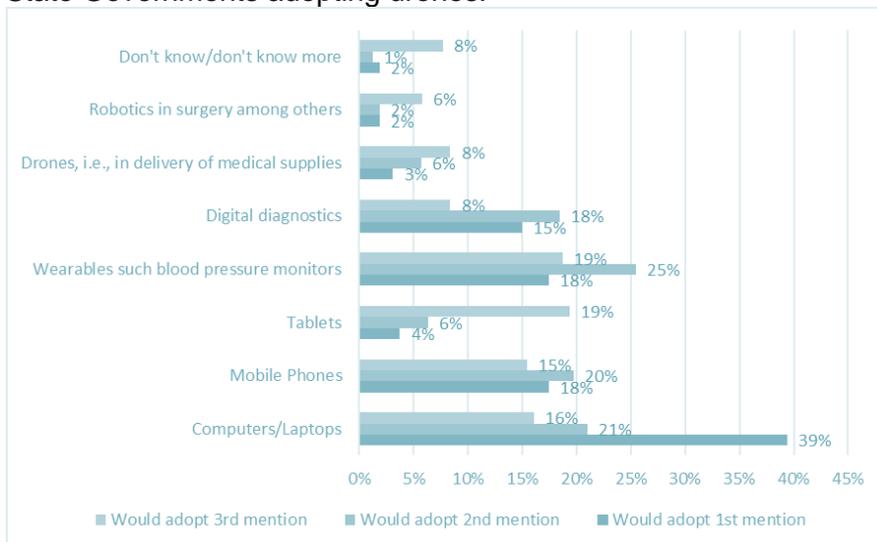
When asked about the likelihood of adoption of technological innovation platforms, solutions and software, the healthcare personnel's responses are not very different from the hardware responses. In the first mention, 19% feel that the Federal and State Governments would likely adopt mobile services, while 17% feel that the governments would likely mobile phone apps. In addition, 11% feel that telemedicine and telemonitoring, while 12% feel that e-medicine and e-health would be adopted. **In total 59% feel that Federal and State Governments would adopt mobile phone-related solutions and platforms.** Emerging technologies such as artificial intelligence have low chances of being adopted, with only 5% mentioning it first while only 2% mention IoT in healthcare.
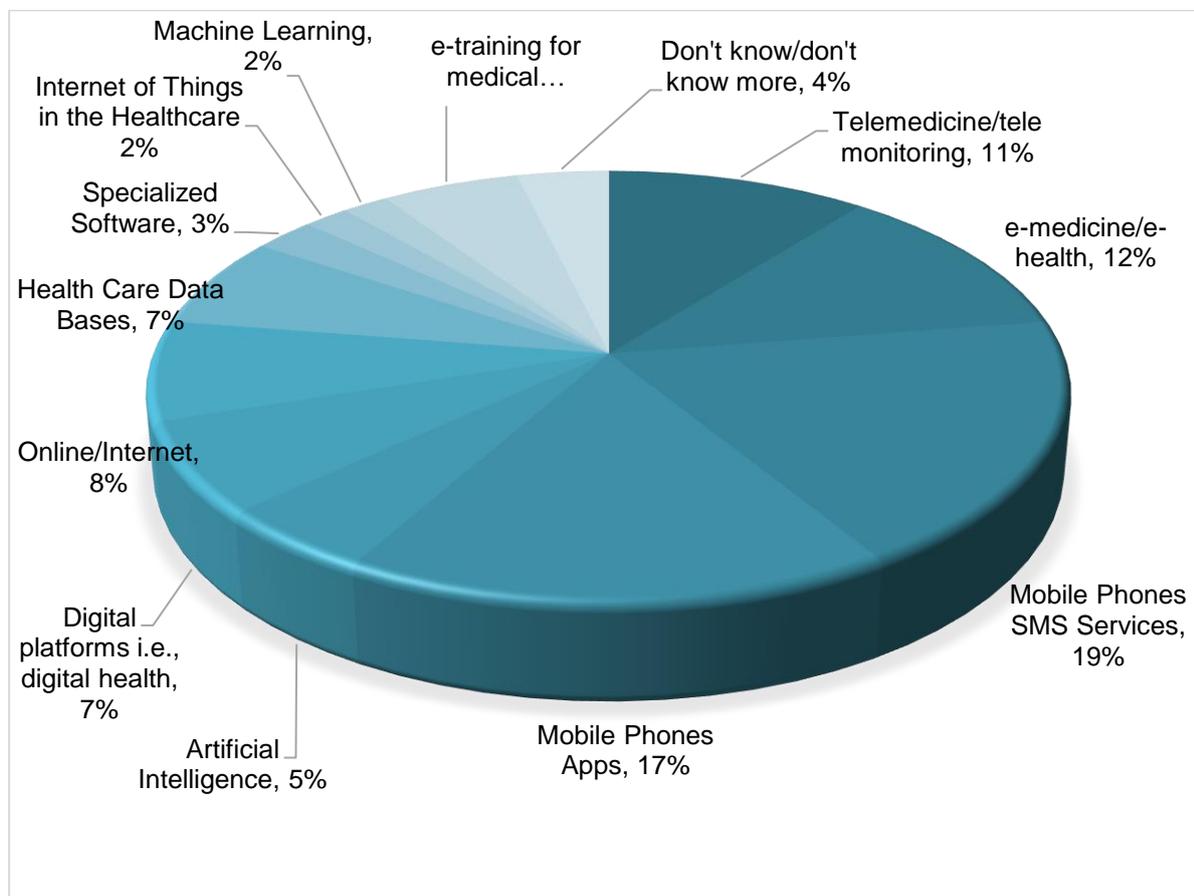
There is not much difference in responses across gender. At the state level, mobile phones SMS services likelihood of adoption is high in the Northern Sates of Plateau and Niger where 35% and 38% respectively feel that the Federal and the State Governments would adopt the solution.

		Gender		State				
	Total	Male	Female	Edo	Lagos	Niger	Ogun	Plateau
Telemedicine/telemonitoring	11%	11%	11%	23%	15%	9%	7%	0%
e-medicine/e-health	12%	13%	11%	17%	21%	13%	7%	3%
Mobile Phones SMS Services	19%	24%	13%	10%	6%	38%	3%	35%
Mobile Phones Apps	17%	17%	17%	7%	12%	25%	33%	9%
Artificial Intelligence	5%	5%	5%	0%	6%	9%	3%	6%
Digital platforms i.e., digital health	7%	2%	12%	10%	15%	0%	3%	6%
Online/Internet	8%	6%	9%	3%	3%	0%	23%	9%
Health Care Data Bases	7%	6%	8%	17%	6%	0%	3%	9%
Specialized Software	3%	2%	3%	0%	9%	3%	0%	0%

Internet of Things in the Healthcare	2%	1%	3%	0%	3%	0%	7%	0%
Machine Learning	2%	2%	1%	3%	3%	0%	3%	0%
e-training for medical personnel	6%	6%	5%	0%	3%	0%	7%	18%
Don't know/don't know more	4%	5%	3%	10%	0%	3%	0%	6%

Levels of importance and Impact of adoption

Stakeholders' perception on level of importance of technology in solving the challenges facing Nigerian PHC.

	Not at all important	Low importance	Slightly important	Neutral	Moderately important	Very important	Extremely important
Telemedicine/telemonitoring	5%	3%	21%	15%	16%	34%	6%
e-medicine/e-health	6%	5%	13%	19%	16%	35%	5%
Computers/Laptops	2%	2%	2%	6%	8%	40%	40%
Mobile Phones SMS Services	0%	2%	5%	3%	13%	32%	45%
Mobile Phones Apps	2%	3%	3%	10%	23%	40%	19%
Drones	26%	15%	13%	24%	5%	15%	3%
Artificial Intelligence	10%	16%	6%	31%	21%	10%	6%
Digital platforms i.e., digital health	8%	5%	10%	21%	18%	29%	10%
Online/Internet	0%	3%	3%	11%	19%	37%	26%
Health Care Data Bases	5%	2%	3%	21%	16%	35%	18%
Specialized Software	6%	5%	5%	26%	19%	37%	2%
Big Data	8%	24%	10%	27%	13%	10%	8%
Internet of Things in the Healthcare	10%	2%	5%	16%	15%	39%	15%
Machine Learning	5%	3%	3%	32%	13%	34%	10%
e-training for medical personnel	5%	2%	2%	15%	18%	45%	15%
Digital diagnostics	5%	0%	5%	19%	21%	24%	26%
Blockchain	16%	19%	10%	29%	10%	16%	0%
Virtual reality (metaverse)	16%	11%	13%	32%	10%	16%	2%

Stakeholders' perception on levels of importance of different institutions in adoption of technological innovation in the Nigerian PHC shows that the **Federal Government is the most important institutions in adoption of technology at the PHC level.** In this regard, 76% feels that the Federal Government of Nigeria is very important in adoption of technological innovations. Besides the Federal Government, another government-related institution that was perceived to be very important is the **Ministry of Health** where 73% of the stakeholders feel that the institution is very important while 23% said that it is important. International organization, Would Health Organization rank third in importance with 71% responding that WHO is very important while 21% think that it is important. 65% of the respondents feel that the State Government is very important. 52% of the stakeholder feel that NGOs/Civil Societies/Lobby Groups are very important while 35% feel that they are important. 50% feel that the United Nations and the Development partners are very important.

4.7 Impact of the Technological Innovation in the Nigerian PHC

Stakeholders' perceived benefits of selected technological innovations

According to the stakeholders, "Rudimentary/Tradition Technologies" innovations such as computers/laptops, mobile phones SMS Services and mobile phones Apps would have great impact on the Nigerian PHC. However, only 27% of the stakeholders feel that drones would have a moderate impact. In addition, many of the stakeholders do not perceive emerging technological innovations such as blockchain as having a great impact on the Nigerian PHC. The table below summarises the Stakeholder's perception of the impact on the Nigerian PHC.

	1 - Insignificant Impact	2 - Minor Impact	3 - Moderate Impact	5 - Extremely great Impact
Telemedicine/telemonitoring	11%	15%	15%	27%
e-medicine/e-health	8%	10%	27%	19%
Computers/Laptops	0%	0%	5%	58%
Mobile Phones SMS Services	2%	0%	16%	53%
Mobile Phones Apps	3%	8%	23%	32%
Drones	23%	26%	27%	6%
Artificial Intelligence	8%	32%	31%	10%
Digital platforms i.e., digital health	10%	15%	24%	16%
Online/Internet	2%	10%	10%	37%
Health Care Data Bases	3%	3%	18%	34%
Specialized Software	3%	10%	34%	24%
Big Data	15%	27%	23%	13%
Internet of Things in the Healthcare	2%	11%	23%	19%
Machine Learning	10%	11%	31%	10%
e-training for medical personnel	5%	6%	27%	27%
Digital diagnostics	6%	5%	31%	32%
Blockchain	15%	24%	39%	8%
Virtual reality (metaverse)	11%	21%	40%	6%
Robotics	29%	31%	27%	6%

Healthcare personnel' perceived benefits of selected technological innovations
Most of the healthcare personnel interviewed see technology as a way of making their work easier and reducing workload. The figure below illustrates this better.

	Gender		Edo	Lagos	State	Ogun	Plateau
	Total	Male	Female			Niger		
It will make work faster and easier	53%	58%	47%	40%	33%	75%	67%	47%
We can save more lives with this innovation which detects diseases easily	1%	2%	0%	0%	0%	6%	0%	0%
Make Work Less stressful	5%	4%	7%	0%	3%	6%	13%	3%
Gaining more knowledge on use of technology	8%	10%	7%	0%	3%	6%	0%	29%
Its will reduce my work load	4%	1%	7%	3%	9%	3%	0%	3%
Enhanced effective services delivery	9%	10%	8%	13%	6%	3%	13%	9%
Will increase the benefits of having upgraded better medical care	2%	2%	1%	3%	0%	0%	3%	3%
Improvements in emergency	1%	1%	0%	0%	0%	0%	3%	0%
It will really help to makes progress in service delivery and reduces failure	1%	0%	3%	0%	0%	0%	7%	0%
It will really helps our service to the needed patient and makes it more secure	1%	1%	0%	0%	0%	0%	3%	0%
Support and educate patients on health issues	1%	1%	0%	0%	3%	0%	0%	0%
Accurate results and solve problems	3%	2%	3%	3%	6%	3%	0%	0%
More convenient and flexible	4%	2%	5%	3%	6%	6%	3%	0%
Is going to along way	1%	1%	0%	0%	0%	0%	0%	3%
Provides a new product or process with new technological features to set it apart from competition	3%	0%	5%	0%	12%	0%	0%	0%
I will be able to attend to many people with in a space of time	5%	4%	7%	7%	9%	6%	3%	0%
Its will help to diagnosis and treat patient better than now	4%	4%	4%	3%	9%	3%	0%	3%
They should share phone with data	1%	1%	0%	0%	0%	3%	0%	0%
It will reduce queue in the facility	1%	1%	0%	0%	0%	0%	0%	3%
I will not be going about to conduct immunization, drones will help easy my job	1%	0%	1%	0%	3%	0%	0%	0%
It enhances many operations	1%	0%	1%	0%	0%	0%	3%	0%
Saves patients data on devices	1%	1%	0%	3%	0%	0%	0%	0%
Telemedicine will go long way helping me to be in touch with my patient	3%	4%	1%	10%	3%	0%	0%	0%
None	5%	5%	5%	13%	0%	3%	3%	6%

Most of the health workers saw technological innovations as means of making their work easier in addition to enhancing effective service delivery. However what is worrying the high number of health workers who did not see any benefits as highlighted in green
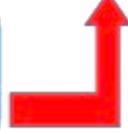
The Role of the respondents in technological innovations in the Nigerian PHC

29% of the health workers see their role in technological adoption as that of creating awareness. In addition, a significant number see their **role encouraging use of technological innovation and educating** themselves, colleagues, and patients on the latest technology. Surprisingly, **11% of the health workers do not see any role in the adoption of technological innovation in the Nigerian PHC**.

4.8   Barriers to the Adoption of Technological Innovations in the Nigerian PHC

19% of the healthcare feel that **bad governance** is a barrier to adoption of technological innovation in the Nigerian PHC. Furthermore, 37% feel that **lack of government funding** is a barrier to adoption. Another perceived barrier to adoption of innovation is the **cost of setting up** which was mentioned by 10% of the healthcare personnel.

	Total			Bad government, poor leadership and poor implications of policies	19%

Bad government, poor leadership and poor implications of policies — 19%
Corruption and lack of transparency in the public health sectors. — 5%
Lack of adequate information on digital awareness — 8%
Lack continuity — 1%
Financial strength — 9%
Religion — 1%
No government funding and support — 37%
Lack of accessibility and poor network — 1%
Lack of provision of working system on technical knowhow — 3%
Lack of trained personnel — 6%
Lack of electricity — 3%
The channel it will pass before approval is too long/Implementation of policies — 1%
Having the mindset that it expensive to buy — 1%
Poor structure to health in the nation is very poor — 3%
Cost of setting up the innovation — 10%
None — 4%

56% of the respondents perceived the government as a barrier to technological innovations adoption in the Nigerian PHC due failing to provide funding and support as well as poor governance.
**10% felt that the cost of setting up innovations is perceived as the third barrier to innovation adoption.**

		Gender		State				
	Total	Male	Female	Edo	Lagos	Niger	Ogun	Plateau
Bad government, poor leadership, and poor implications of policies	19%	20%	18%	18%	24%	9%	0%	41%
Corruption and lack of transparency in the public health sectors.	5%	7%	3%	4%	6%	3%	0%	12%
Lack of adequate information on digital awareness	8%	12%	4%	11%	3%	6%	13%	9%
Lack continuity	1%	0%	1%	0%	0%	3%	0%	0%
Financial strength	9%	10%	8%	7%	6%	16%	3%	12%
Religion	1%	2%	0%	0%	0%	6%	0%	0%
No government funding and support	37%	35%	41%	54%	29%	47%	50%	12%
Lack of accessibility and poor network	1%	1%	0%	0%	3%	0%	0%	0%
Lack of provision of working system on technical knowhow	3%	0%	5%	0%	0%	0%	7%	6%
Lack of trained personnel	6%	4%	9%	4%	3%	3%	10%	12%
Lack of electricity	3%	2%	3%	0%	9%	0%	3%	0%
The channel it will pass before approval is too long/Implementation of policies	1%	0%	3%	0%	3%	0%	0%	3%
Having the mindset that it expensive to buy	1%	0%	1%	0%	3%	0%	0%	0%
Poor structure to health in the nation is very poor	3%	5%	1%	4%	0%	9%	0%	3%
Cost of setting up the innovation	10%	10%	11%	7%	26%	0%	17%	0%
None	4%	5%	4%	4%	3%	0%	13%	3%

4.9   Decision Makers in the Nigerian PHC

This question was important in order to know the person or people to approach when introducing any innovative technology in the Nigerian PHC.
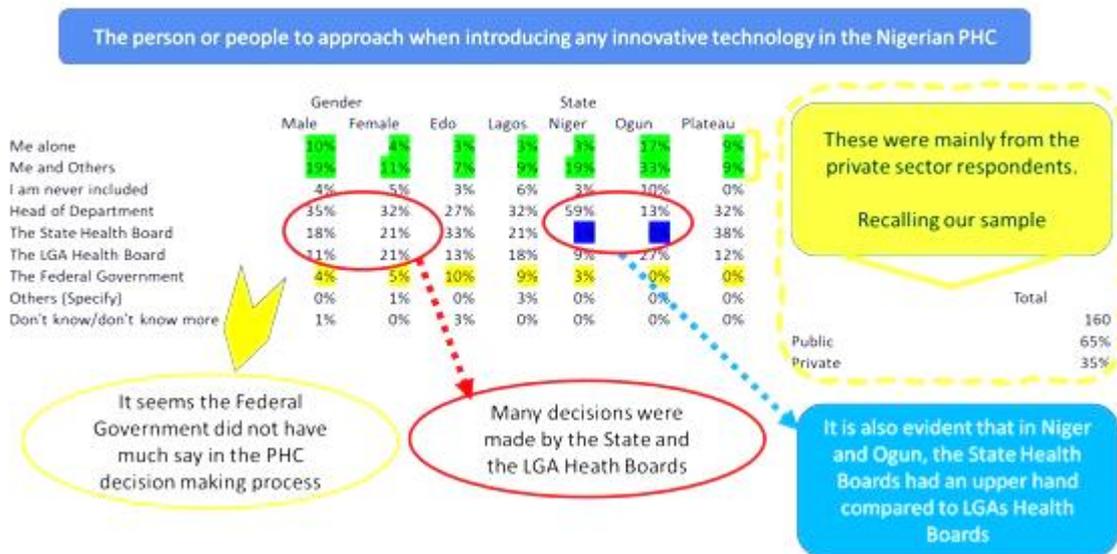
From the figure above, it seems the Federal Government does not have much say in the PHC decision-making process. In this regard, many decisions are made by the State and the LGA Heath Boards.

4.10   Acceptance and Rejection of Innovative Technologies

We asked the healthcare personnel which technological innovations they would try or not try in the future and the reasons why in order to measure acceptance and rejection and to capture the reasons for acceptance and rejections. Below is our finding on the acceptance and rejections.

4.10.1   Acceptance

Technological Innovations that the Healthcare Personnel Would Try

When asked which hardware technological innovations they would try in future at a personal level, on the 1st, 2nd and 3rd mentions, 39%, 18% and 15% of the healthcare workers interviewed would try computers and laptops, as highlighted in green in the table below. Additionally, 18%, 18% and 18% would try wearables such as blood pressure monitors, on the 1st, 2nd and 3rd mentions respectively, also highlighted in green. The table below summarises the 1st, 2nd and 3rd mention of the hardware technological innovations, the healthcare workers would at a personal level.

Mentions	Would try 1st mention		Would try 2nd mention		Would try 3rd mention	
	Absolute	Percentage	Absolute	Percentage	Absolute	Percentage
Total	160	100%	160	100%	153	100%
Computers/Laptops	63	39%	29	18%	23	15%
Mobile Phones	22	14%	35	22%	13	8%

Tablets	6	4%	16	10%	37	24%
Wearables such blood pressure monitors	29	18%	28	18%	27	18%
Digital diagnostics	27	17%	29	18%	24	16%
Drones, i.e., in delivery of medical supplies	8	5%	12	8%	9	6%
Robotics in surgery among others	5	3%	4	3%	7	5%
Don't know/don't know more	0	0%	7	4%	13	8%

It is important to note that from the table above, emerging technologies such as robots and drones have few respondents who were willing to try them at a personal level in future. When asked why they would try hardware technological innovations, the healthcare workers have several reasons. Some of the reasons they give are:

✓ "They are much easier to access the internet and more health information"
✓ "Modern Innovative technology"
✓ "It gives a perfect and reliable data outcome"

Below are tables with examples of reasons on why the healthcare personnel would try with 1st, mentions of why they would try computers, laptops, and wearables such as blood pressure monitors.

Reasons why the Healthcare Personnel Would TRY the following HARDWARE innovation-1st mention (Computers/Laptops)								
		Gender		State				
	Total	Male	Female	Edo	Lagos	Niger	Ogun	Plateau
Number of Respondents	**63**	**37**	**26**	**7**	**13**	**14**	**7**	**22**
They are much easier to access internet and more health information	13%	14%	12%	14%	0%	29%	0%	14%
To make work fast, ease human effort and safe	46%	51%	38%	43%	31%	50%	43%	55%
To enhance and boost my knowledge	8%	5%	12%	0%	8%	7%	14%	9%
Work accurately	3%	3%	4%	0%	0%	0%	0%	9%
Because is a very easy way to get access to the global economy	6%	11%	0%	0%	8%	14%	0%	5%
Modern Innovative technology	10%	8%	12%	0%	8%	7%	43%	5%
It helps allowing easy care coordination between doctors and other healthcare providers	2%	3%	0%	0%	8%	0%	0%	0%
Computer can schedule appointments	2%	3%	0%	0%	8%	0%	0%	0%
Used for tracking lab results	3%	3%	4%	0%	8%	0%	0%	5%
Manage billing and insurance information	2%	3%	0%	0%	8%	0%	0%	0%
It helps for documentation of important information	8%	8%	8%	0%	38%	0%	0%	0%
Keeping and monitoring database records safe for the patient.	10%	5%	15%	14%	31%	0%	0%	5%
It is reliable for communication	3%	3%	4%	0%	0%	0%	29%	0%
Easy to use and flexible as in portability	8%	8%	8%	43%	8%	7%	0%	0%

Reasons why the Healthcare Personnel would try the following HARDWARE innovation--1st mention (Wearables such blood pressure monitors)

	Total	Gender		State				
		Male	Female	Edo	Lagos	Niger	Ogun	Plateau
Sample	29	9	20	8	5	3	12	1
To make work fast, ease human effort and safe	17%	11%	20%	25%	0%	0%	17%	100%
Modern Innovative technology	7%	11%	5%	25%	0%	0%	0%	0%
It is reliable for communication	10%	22%	5%	0%	40%	33%	0%	0%
It would be less expensive compared to other facilities	7%	11%	5%	25%	0%	0%	0%	0%
It helps in monitoring the patient blood status and heartbeat	45%	22%	55%	38%	40%	33%	58%	0%
It gives a perfect and reliable data outcome	17%	33%	10%	13%	20%	33%	17%	0%
Does not require special training hence can be used by everyone	3%	11%	0%	13%	0%	0%	0%	0%
It helps to keep track of the health status	3%	0%	5%	0%	0%	0%	8%	0%

In the Annex A, we include all the reasons why they would try the different hardware technological innovations.

Applications, Platforms or Software Technological Innovations that the Healthcare Personnel Would Try In Future And Reasons Why

When asked which applications, platforms, or software technological innovations they would try in future at a personal level, on the 1st, 2nd and 3rd mentions, 20%, 16% and 5% of the healthcare workers interviewed would try mobile phones SMS Services, as highlighted in green. Furthermore, 18%, 22% and 14% would try Mobile Phones Apps, on the 1st, 2nd and 3rd mentions respectively, also highlighted in green. The table below summarises the 1st, 2nd and 3rd mention of the technological innovations, the healthcare workers would at a personal level.

	Would try 1st mention		Would try 2nd mention		Would try 3rd mention	
	Absolute	Percentage	Absolute	Percentage	Absolute	Percentage
Total	160	100%	155	100%	149	100%
Telemedicine/telemonitoring	19	12%	9	6%	5	3%
e-medicine/e-health	21	13%	12	8%	10	7%
Mobile Phones SMS Services	32	20%	25	16%	8	5%
Mobile Phones Apps	29	18%	34	22%	21	14%
Artificial Intelligence	5	3%	5	3%	6	4%
Digital platforms i.e., digital health	14	9%	11	7%	10	7%
Online/Internet	12	8%	11	7%	21	14%
Health Care Data Bases	4	3%	3	2%	11	7%
Specialized Software	2	1%	9	6%	5	3%
Big Data	2	1%	1	1%	1	1%
Internet of Things in the Healthcare	2	1%	10	6%	14	9%
Machine Learning	1	1%	4	3%	3	2%
e-training for medical personnel	8	5%	8	5%	9	6%
Blockchain	1	1%	0	0%	1	1%
Virtual reality (metaverse)	1	1%	2	1%	0	0%

Don't know/don't know more	5	3%	6	4%	23	15%

Very few Health Care Personnel would try emerging technologies such as Internet of Things in Healthcare, Blockchain, Virtual Reality (Metaverse) among others.

Reasons for Trial

When asked why they would try, applications, platforms or software technological innovations, the healthcare workers have several reasons. Some of reasons they give are:
- ✓ "It is an innovation in the health care system"
- ✓ "We all use mobile phones that are portable, handy and safe"
- ✓ "Make health care to be accessible from afar"
- ✓

Below is the table with examples of reasons why the healthcare personnel would try with 1st, mentions of why would try mobile phones SMS services and mobile phones Apps, i.e., in delivery of medical supplies.

Reasons why the Healthcare Personnel Would Try the following APPLICATIONS, PLATFORMS or SOFTWARE innovations-1st mention (Mobile Phones SMS Services)							
		Gender		State			
	Total	Male	Female	Edo	Lagos	Niger	Ogun	Plateau
Number of Respondents	32	21	11	3	4	10	4	11
Somewhat dependable	6%	10%	0%	0%	0%	20%	0%	0%
Keeps the relationship between the patient and doctor/nurse	6%	5%	9%	0%	25%	0%	0%	9%
It is a new innovation in the health care system	3%	5%	0%	33%	0%	0%	0%	0%
It saves cost	9%	10%	9%	0%	0%	0%	0%	27%
Make health care to be accessible from afar	3%	5%	0%	0%	0%	0%	25%	0%
To gain more knowledge and train for it	3%	5%	0%	0%	0%	10%	0%	0%
Quick response to patient	6%	5%	9%	0%	0%	10%	0%	9%
Easy and fast for communication and information	34%	33%	36%	67%	50%	30%	0%	36%
To be more efficient in the services delivery	22%	14%	36%	0%	25%	30%	25%	18%
Nothing	6%	10%	0%	0%	0%	0%	50%	0%

Reasons why the Healthcare Personnel Would TRY the following APPLICATIONS, PLATFORMS or SOFTWARE innovations-1st mention (Mobile Phones Apps)							
		Gender		State			
	Total	Male	Female	Edo	Lagos	Niger	Ogun	Plateau

Number of Respondents	29	16	13	4	1	9	5	10
To ease workloads	10%	0%	23%	0%	100%	11%	20%	0%
Keeps the relationship between the patient and doctor/nurse	3%	6%	0%	0%	0%	11%	0%	0%
Make health care to be accessible from afar	7%	6%	8%	0%	0%	0%	0%	20%
Give updates about health issues	3%	0%	8%	0%	0%	0%	0%	10%
To gain more knowledge and train for it	10%	0%	23%	0%	0%	0%	20%	20%
Patient can easily learn important information of drugs before using them	17%	19%	15%	25%	0%	11%	0%	30%
Easy and fast for communication and information	24%	25%	23%	25%	0%	22%	40%	20%
To be more efficient in the services delivery	3%	6%	0%	25%	0%	0%	0%	0%
We all use mobile phones are portable, handy, and safe	14%	25%	0%	0%	0%	44%	0%	0%
With Mobile it will be easier to subscribe to the required apps	3%	6%	0%	25%	0%	0%	0%	0%
Nothing	7%	6%	8%	0%	0%	0%	40%	0%

In the Annex B, we include all the reasons why they would try the applications, platforms, or software technological innovations.

4.10.2   Rejections

Technological Innovations that the Healthcare Personnel Would Not Try

When asked which hardware technological innovations they would not try in future at a personal among others, as highlighted in yellow. furthermore, 21%, 26% and 9% would not try drones, i.e., in level, on the 1st, 2nd and 3rd mentions, 25%, 35% and 9% of the healthcare workers would not try robotics in surgery delivery of medical supplies on the 1st, 2nd and 3rd mentions respectively, also highlighted in yellow. the table below summarises the 1st, 2nd and 3rd mention of the applications, platforms or software technological innovations, the healthcare workers would not try at a personal level.

Mentions	Would NOT try 1st mention		Would NOT try 2nd mention		Would NOT try 3rd mention	
	Absolute	Percentage	Absolute	Percentage	Absolute	Percentage
Total	160	100%	102	100%	78	100%
Computers/Laptops	2	1%	4	4%	3	4%
Mobile Phones	6	4%	1	1%	4	5%
Tablets	4	3%	4	4%	4	5%
Wearables such blood pressure monitors	6	4%	1	1%	7	9%

Digital diagnostics	5	3%	5	5%	9	12%
Drones, i.e., in delivery of medical supplies	33	21%	27	26%	7	9%
Robotics in surgery among others	40	25%	36	35%	7	9%
Other	6	4%	0	0%	6	8%
Don't know/don't know more	58	36%	24	24%	31	40%

When asked why they would not try below are the reasons why they would hardware technological innovations, the healthcare workers have several reasons.
some of reasons they gave are:
✓ "it is expensive"
✓ "not fully dependable"
✓ "cause it a program and mistakes can happen"

Below are tables with examples on reason they would not try with 1st, mentions of why they would not try robotics in surgery among others and drones, i.e., in the delivery of medical supplies.

Reasons why the Healthcare Personnel would NOT try the following HARDWARE innovations-1st mention (Robotics in surgery among others)								
		Gender		State				
	Total	Male	Female	Edo	Lagos	Niger	Ogun	Plateau
Number of Respondents	**40**	**17**	**23**	**7**	**12**	**4**	**9**	**8**
It is expensive	20%	12%	26%	43%	42%	0%	0%	0%
Not fully dependable	5%	0%	9%	0%	0%	0%	22%	0%
it might not be realistic in this country with our level of development	5%	0%	9%	0%	8%	0%	0%	13%
Lack of awareness	20%	24%	17%	0%	8%	50%	22%	38%
I cannot trust it for now	8%	18%	0%	0%	17%	0%	0%	13%
It might be too cumbersome, complicated, and dangerous	10%	12%	9%	0%	8%	25%	0%	25%
Human is more needful than robotics	13%	24%	4%	14%	25%	0%	0%	13%
Cause it a program and mistakes can happen	3%	0%	4%	0%	8%	0%	0%	0%
Considering the location of the service	3%	6%	0%	0%	0%	0%	0%	13%
May lead to the loss of live	8%	6%	9%	29%	0%	25%	0%	0%
It might require more technical knowledge, systems errors, and the likes	10%	0%	17%	0%	0%	0%	44%	0%
Nothing	8%	12%	4%	14%	0%	0%	22%	0%

In the Annex C, we include all the reasons why they would not try the hardware technological innovations.

When asked which applications, platforms, or software technological innovations they would

not try in future at a personal level, on the 1st, 2nd and 3rd mentions, 9%, 14% and 10% of the healthcare workers would not try blockchain, as highlighted in yellow. in addition, 8%, 10% and 8% would not try artificial intelligence on the 1st, 2nd and 3rd mentions respectively, also highlighted in yellow. The table below summarises the 1st, 2nd and 3rd mentions of the applications, platforms or software technological innovations, that healthcare workers would not try at a personal level.

Mentions	Would NOT try 1st mention		Would NOT try 2nd mention		Would NOT try 3rd mention	
	Absolute	Percentage	Absolute	Percentage	Absolute	Percentage
Total	160	100%	110	100%	93	100%
Telemedicine/telemonitoring	9	6%	5	5%	6	6%
e-medicine/e-health	3	2%	9	8%	6	6%
Mobile Phones SMS Services	3	2%	2	2%	2	2%
Mobile Phones Apps	1	1%	0	0%	1	1%
Artificial Intelligence	13	8%	11	10%	7	8%
Digital platforms i.e., digital health	2	1%	4	4%	5	5%
Online/Internet	2	1%	3	3%	3	3%
Health Care Data Bases	3	2%	0	0%	1	1%
Specialized Software	4	3%	3	3%	3	3%
Big Data	6	4%	5	5%	8	9%
Internet of Things in the Healthcare	2	1%	2	2%	1	1%
Machine Learning	1	1%	5	5%	6	6%
e-training for medical personnel	1	1%	3	3%	1	1%
Blockchain	14	9%	15	14%	9	10%
Virtual reality (metaverse)	9	6%	11	10%	13	14%
Other	6	4%	1	1%	3	3%
Don't know/don't know more	50	31%	17	15%	14	15%

When asked why they would not try below are the reasons why they would applications, platforms or software technological innovations, the healthcare workers had several reasons. Some of reasons they gave are:
- ✓ "I do not know its functions"
- ✓ "It is risky and highly complicated"
- ✓ "It's too expensive to buy"

Below are tables with examples on reason not to try with 1st, mentions of why they would not try blockchain and artificial intelligence.

Reasons why the Healthcare Personnel would NOT try the following APPLICATIONS, PLATFORMS or SOFTWARE innovations-1st mention (Blockchain)								
		Gender		State				
	Total	Male	Female	Edo	Lagos	Niger	Ogun	Plateau
Number of Respondents	14	5	9	3	1	1	5	4
I do not know its functions	14%	20%	11%	67%	0%	0%	0%	0%
It's too expensive to buy	14%	20%	11%	0%	0%	0%	0%	50%

	Total							
Lack of awareness	7%	20%	0%	0%	0%	0%	0%	25%
Requires lots of technology skills and experts to operate	7%	0%	11%	0%	0%	0%	20%	0%
We are not ready for this innovation as a country	14%	0%	22%	33%	100%	0%	0%	0%
There might not be much acceptance from people or trust	7%	0%	11%	0%	0%	100%	0%	0%
Nothing	36%	40%	33%	0%	0%	0%	80%	25%

Reasons why the Healthcare Personnel would NOT try the following APPLICATIONS, PLATFORMS or SOFTWARE innovations-1st mention (Artificial Intelligence)								
		Gender		State				
	Total	Male	Female	Edo	Lagos	Niger	Ogun	Plateau
Number of Respondents	13	4	9	6	2	0	2	3
I do not know its functions	15%	25%	11%	0%	0%	0%	50%	33%
It is risky and highly complicated	8%	0%	11%	0%	0%	0%	50%	0%
Unreliable	15%	0%	22%	17%	0%	0%	0%	33%
Undependable and not feasible	8%	0%	11%	17%	0%	0%	0%	0%
Unavailable and difficult to access	8%	0%	11%	0%	0%	0%	0%	33%
Requires lots of technology skills and experts to operate	38%	50%	33%	67%	50%	0%	0%	0%
Patients would not be willing to try this because they are actually not conversant with it	8%	0%	11%	0%	50%	0%	0%	0%
Nothing	8%	25%	0%	0%	0%	0%	50%	0%

In the Annex D, we include all the reasons why the healthcare personnel would not try the applications, platforms, or software technological innovations.

5. Online Survey

The Online survey was conducted using Kobo Toolbox, an online, open-source platform for quantitative and quantitative research used by international organisations. The online survey was published on 8th February 2023 and promoted across stakeholders and social media for three weeks. It was open to respondents from anywhere in Nigeria. 22 respondents filled in the online survey. The online survey confirms most of the results of the quantitative research among stakeholders and PHC personnel.

Demographics of the respondents

- ✓ Age: 45% of the respondents were between 35-44 years old; 22% between 25-34 years old; 22% between 45-54 years old; only 9% between 55-64 years old.
- ✓ State: 40% of the respondents were based in Lagos, 14% in Ogun State, 14% in Plateau State, 10% in the Federal Capital Territory, and the remaining ones were from Nasarawa, Ekiti, Abia and Cross River States.
- ✓ 55% of the respondents were male. To be noted 10% preferred not to answer this question.
- ✓ 90% of the respondents are not PHC personnel
- ✓ 60% of the respondents visited a PHC (as patient) in the last 6 months.

Advantages of PHCs

Interestingly, most of the respondents see the PHC as important for vulnerable members of the community and the immunisation service as the most important advantage of PHCs. Consistently, the 1st choice to the question "*What is the most important advantage of PHC?*" revolves around making medical care available, 2nd choice is related to closeness to home, and accessibility and the 3rd choice is related to immunisation services
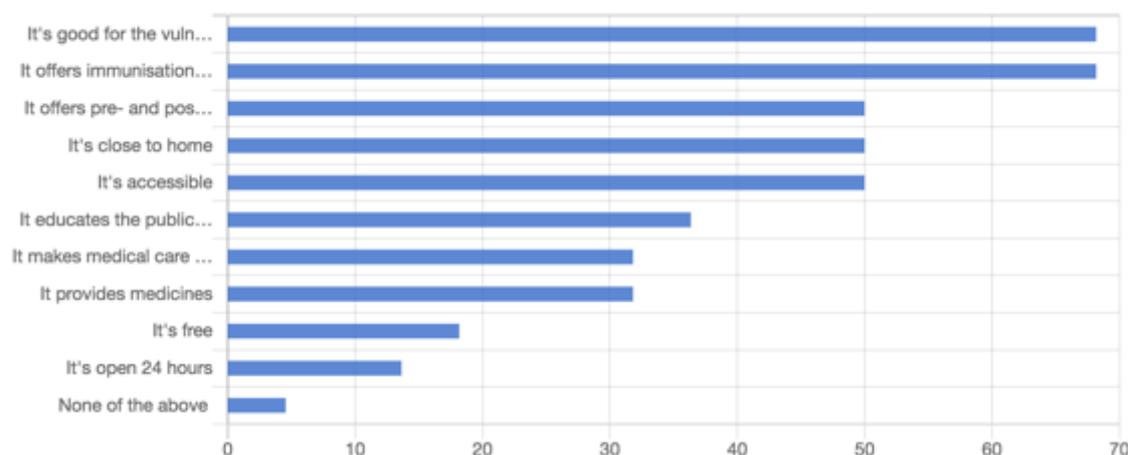
Challenges of the PHCs

The first challenge mentioned is lack of electricity, blackouts (78%), followed by "not best for emergency services" (68%) and lack of well-trained personnel (68%). Lack of funding, lack of basic facilities, lack of internet and poor service delivery are mentioned by 55% of the respondents.

Awareness of usage of technologies in PHCs

60% of the respondents mention mobile phones, followed by wearable diagnostics (such as blood pressure) with 45%. Computer and laptops are mentioned by 40%, along with diagnostic

digital equipment and tablets only by 36%. Notably, 18% answered "Don't Know". As per software and applications, respondents mention: wearable medical devices (40%); digital diagnostic (36%), patient management solutions and healthcare databases (27%).

Willingness to Pay for Innovative Solutions

77% of the respondents would be willing to pay for innovative solutions.

Public and private PHCs adoption of innovative solutions

87% of the respondents believe that innovative solutions are mostly adopted by private PHCs.

Best Suited Innovative Solutions to Answer to the PHCs Challenges

50% of the respondents think that e-learning for healthcare providers is the best fitting solution to answer the current PHC challenges in Nigeria. Followed by patients' management solutions and health care databases with 46% and digital diagnostic with 40%. Telemedicines (27%), computer and laptops (22%), remote patients' monitoring (18%) along with e-medicine.
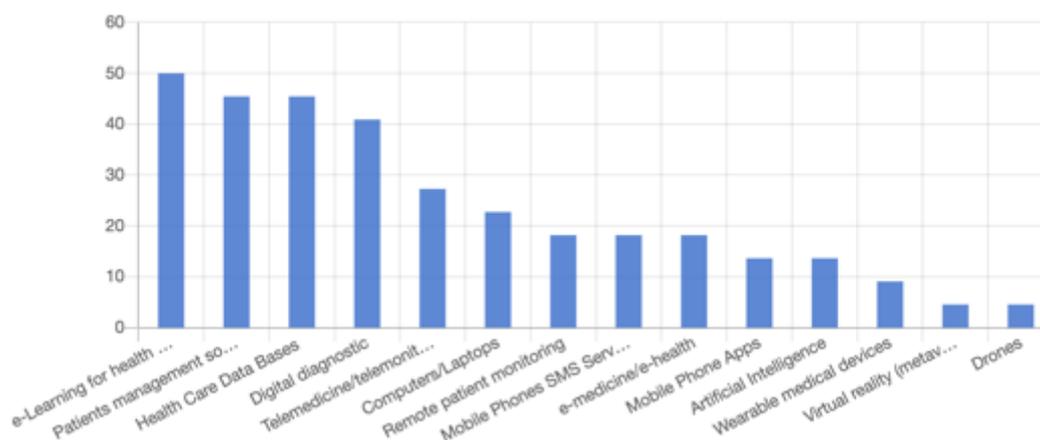
Benefits of Innovative Solutions

Respondents mention the following benefits:
- ✓ It provides results to patients faster
- ✓ It simplifies the work of healthcare personnel
- ✓ It improves the patients' experience
- ✓ It reduces inappropriate treatment
- ✓ It reduces the number of visits to PHCs

Level of Importance of Organisations and Institutions in the Adoption of Innovative Solutions

The results, in this case, diverge from the quantitative research, as development partners and donors are seen as the most influential (54%) followed by doctors (50%). Health State Board is mentioned by 45% but it is followed by Nurses with 45%.
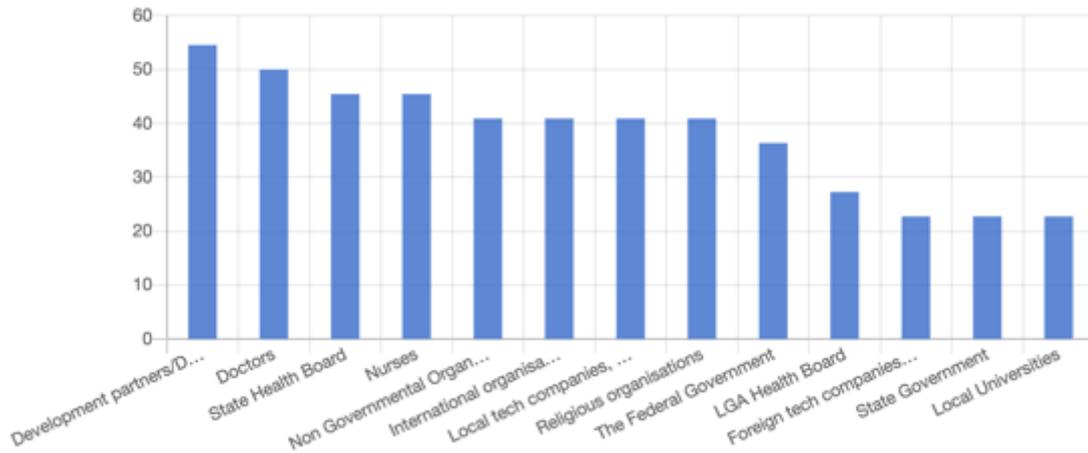
In Annex E the full online questionnaire.

6. Experts' Validation Workshop

The online experts' validation workshop took place on 24th March 2023, it lasted around 2 hours and saw the participation of 10 external experts with different backgrounds (health care practitioners, policy experts, innovation, academia). The discussion focused on five key points (based on the research preliminary results):

✓ Key Primary Healthcare areas needing innovation (diagnostic, patients' management etc)
✓ Innovation Inhibitors
✓ Innovation opportunities
✓ Key players to foster innovation (health practitioners, policymakers, etc)
✓ Most promising technology for the primary healthcare

The primary objectives of the workshop were to:

✓ Validate the preliminary results of the research
✓ Inform the challenges focus for Nigerian innovators (H-HACK health care hackathon, launched in the following weeks).

The participants in the workshops included:

✓ Dr Ibukun Tunde, Founder Eight Medical (Male)
✓ David Akpan, Ehealth Africa (Male)
✓ Dare Odumade, Founder Chekkit (Male)
✓ Lantana Elhassan, UNDP Accelerator (Female)
✓ Jamila Mohammed, UNDP Accelerator (Female)
✓ Prof Ahmed A. Adedeji. LASUSTECH (Male)
✓ Ademola Elizabeth, patient (Female)
✓ Charity Change, Gates Foundation (Female)
✓ Arun Raj, Shalina Pharmaceutical (Male)
✓ Egun Tekun, ILO (Male)

✓ Fatima Hussaini, GIZ (Female)
✓ Sina Uti-Waziri, GIZ (Female)
✓ Olawale Afolabi, GIZ (Male)

The moderator (Margherita Trestini, Prototipi) welcomed everyone to the meeting and introduced the purpose of the workshop, which was to **discuss research on primary healthcare innovation in Nigeria**. The group includes academics, innovators, donors, and researchers. The SEDIN research has identified challenges related to limited healthcare worker capacity and limited opportunities for training as well as a lack of finance for public primary healthcare infrastructure and equipment. There are also challenges related to remote areas that affect staff availability in rural areas. Participants are asked to add their comments on the virtual whiteboard about these needs or any other relevant ones they see fit.

The discussion centres around the c**hallenges faced by primary healthcare workers in rural areas and how innovation and technology can help improve their work**. One major challenge is the **lack of resources, including equipment and personnel**, which makes it difficult for healthcare workers to provide quality care. Another challenge is the **reluctance of some healthcare workers to work in rural areas** due to factors such as distance from family and limited resources. The group discusses potential solutions such as **upskilling new entrants, using telemedicine to provide remote care, and digitising learning materials for healthcare worker**s. The importance of **building trust with communities** and stakeholders is emphasized as a key factor in implementing any innovations or changes in primary healthcare delivery.

The discussion focuses on the challenges, inhibitors, and opportunities for introducing innovation in primary healthcare. **Lack of capacity building and inadequate health**

infrastructure are seen as major challenges. **Private healthcare is considered a potential first adopter of innovation**, while co**mmunity-based insurance and extensive ICT penetration among frontline healthcare workers are identified as opportunitie**s. There is also a willingness to pay for services if it means faster results and better experience from patients' side. The possibility of privatising primary healthcare management could introduce more innovation, but there needs to be a way to consolidate all different innovations or paths across the healthcare sector, particularly in the public sector so that data can be centralized and leveraged by others in different parts of the country.

The participants of the webinar discussed technology innovations that could improve primary healthcare in Nigeria. **They suggested using mobile phones for follow-up with patients and health education, wearable devices, and leveraging existing solutions rather than creating new ones.** The importance of **interoperability and standardisation** was also emphasized. Participants highlighted the need to consider **end-users perspectives** when developing solutions, including healthcare professionals and patients. The next steps will include defining challenges for innovators and selecting three finalists to pitch their ideas at a final event in July 2021.

The participants in the workshop discussed solutions that are **not interoperable and not bundled as a service, leading to concerns about their sustainability**. The idea of having **ambassadors to promote and test the innovations was suggested**, but it may be difficult to find suitable people with enough outreach. The government could potentially take on this role.

In Annex F screenshot of the interactive whiteboard used during the validation workshop.

7. Conclusions and Way forward

From the quantitative phase for both stakeholders and the healthcare personnel, the results were consistent with the findings of the 2 previous phases, namely the desk research and the qualitative in-depth interviews.

In a typical day a healthcare worker attends to between 1 and 20 patients per day. This was consistent across the five states the survey was carried out. These states are Edo, Lagos, Niger, Ogun, and Plateau.

Both stakeholders and healthcare personnel agree that the Nigerian PHC had advantages and benefits. The most important of these advantages and benefits was accessibility. It is also come out that both the stakeholders and the healthcare personnel did not perceive the fact that the services offered at the PHC were free as important.

On challenges, the most pressing challenge according to both the stakeholders and the healthcare personnel was lack of facilities such as laboratories as well as lack of funding.

On usage of technological innovations in the Nigerian PHC, the stakeholders had a low opinion on usage of technological innovation in the public-owned PHC facilities. They however felt that there was a significant use of technological innovations in the private-owned PHC.

The awareness of the usage of technological innovations in the Nigerian PHC was limited to "Rudimentary/Tradition" with both the stakeholders and healthcare personnel mainly aware of usage of computers/laptops and mobile phones at the PHC level. Emerging technologies such as drones, AI, and blockchain had very low level of awareness. Interestingly, the Healthcare personnel did not differentiate IoT from normal internet. This means that there need to educate and inform them the difference between IoT and normal internet usage.

At the same time, the stakeholders and healthcare personnel felt that "Rudimentary/Tradition" had a high likelihood of adoption in the Nigerian PHC as opposed to the emerging technologies such as drones, robotics etc.

Some of the reasons why adoption of emerging technologies has a low likelihood of adoption included:

✓ Lack of awareness of the existence of emerging technologies
✓ Lack of knowledge of their functions
✓ Perceived to be very expensive
✓ Perceived to be very technical requiring lots of technology skills and experts to operate

Some even thought that the emerging technologies were undependable and not feasible. In addition, there might be not much acceptance/trust from the people

Therefore, it is true to say that currently, the use of technological innovation in the Nigerian PHC is very basic and restricted to the use of computers/laptops and mobile phones.

We cannot jump to a conclusion and say that it is because the emerging technologies cannot work, but they do not at the moment. The market needs to evolve from its current basic nature. At the moment the best technological solutions need to be around the use of computers and mobile phones.

The low awareness of already existing solutions shows that the entrepreneurs who have already invested in technological innovations lack funds to create awareness and hence are not leaping to maximum benefits on their investment. As such, an innovator can come up with ways of creating computer and mobile phone-related solutions and invest in creating awareness.

However, before one jumps in and starts investing, there is a need to understand where the money is. Therefore, we suggest more robust research among the general public to be able to segment the market into various segments. Once that is done, we can go ahead and identify target groups and create fitting solutions.

Before anyone can launch a product or solution, there is a need to test the concept, and carry out a pricing study to come up with an optimal price that the public would be willing to pay for our solution. From here the investor will be able to develop a go-to-market strategy.

There are a lot of opportunities in the PHC sector regarding innovative solutions. This is because, at the moment the market is very basic, has fewer players and hence less competition. In addition, it is important to remember that Nigeria is the largest economy in

Africa, in addition to being the most populous country in the continent. Therefore, if the right segment is identified and the right solution tested and launched, there is a lot of money to be made.

As we have mentioned before in other reports, the use of technological innovation is inevitable in the Nigerian PHC because of the following factors:

- ✓ It is a global phenomenon which has many benefits and will play a great role in future
- ✓ It will help in service delivery by allowing workers to work seamlessly
- ✓ Going digital is perceived as automation of operations which will greatly boost service delivery at the PHC level.
- ✓ Technology can help one work remotely.
- ✓ Technology would help in removing quarks in the PHC

For starters below are areas that need further investigation since they have the potential to make money.

- ✓ The adoption of technology is preferred because it will make operations easier
- ✓ Telemedicine, Mobile Health, Use of social media
- ✓ Record Keeping, SMS, Inventory control
- ✓ To grow local talents and speed up innovation adoption at the PHC levels, there is a need to identify and encourage innovators by financing them
- ✓ Training of the PHC staff which will help in ensuring that the PHC is efficient in such a way that people do bypass to go other either secondary or federal level facilities and consequently reduce pressure

- ✓ Financiers. Since lack of funding is a major challenge, there are opportunities to fund innovations and other development the Nigerian PHC.
- ✓ Provision of amenities
- ✓ Introduce the use of Smart Card for patients, so that when they come to the facility, they carry it. The smart card needs to be unique to its user.
- ✓ Use of other technologies such as Drones and Robotics

ANNEX A: Reasons why the Healthcare Personnel would try the following HARDWARE innovations 1st, 2nd and 3rd Mentions

Reasons why the Healthcare Personnel would try the following HARDWARE innovation-1st mention (Computers/Laptops)		Gender		State				
	Total	Male	Female	Edo	Lagos	Niger	Ogun	Plateau
Number of Respondents	**63**	**37**	**26**	**7**	**13**	**14**	**7**	**22**
They are much easier to access internet and more health information	13%	14%	12%	14%	0%	29%	0%	14%
To make work fast, ease human effort and safe	46%	51%	38%	43%	31%	50%	43%	55%
To enhance and boost my knowledge	8%	5%	12%	0%	8%	7%	14%	9%
Work accurately	3%	3%	4%	0%	0%	0%	0%	9%
Because is a very easy way to get access to the global economy	6%	11%	0%	0%	8%	14%	0%	5%
Modern Innovative technology	10%	8%	12%	0%	8%	7%	43%	5%
It helps allowing easy care coordination between doctors and other healthcare providers	2%	3%	0%	0%	8%	0%	0%	0%
Computer can schedule appointments	2%	3%	0%	0%	8%	0%	0%	0%
Used for tracking lab results	3%	3%	4%	0%	8%	0%	0%	5%
Manage billing and insurance information	2%	3%	0%	0%	8%	0%	0%	0%
It helps for documentation of important information	8%	8%	8%	0%	38%	0%	0%	0%
Keeping and monitoring data base records safe for the patient.	10%	5%	15%	14%	31%	0%	0%	5%
It is reliable for communication	3%	3%	4%	0%	0%	0%	29%	0%
Easy to use and flexible as in portability	8%	8%	8%	43%	8%	7%	0%	0%

Reasons why the Healthcare Personnel would try the following HARDWARE innovation--1st mention (Digital diagnostics)		Gender		State				
	Total	Male	Female	Edo	Lagos	Niger	Ogun	Plateau
Number of Respondents	**27**	**11**	**16**	**6**	**12**	**1**	**2**	**6**
To make work fast, ease human effort and safe	22%	27%	19%	33%	17%	0%	100%	0%
To enhance and boost my knowledge	4%	0%	6%	0%	0%	0%	0%	17%
Modern Innovative technology	15%	18%	13%	0%	0%	0%	0%	67%
Used for tracking lab results	7%	0%	13%	0%	17%	0%	0%	0%
Keeping and monitoring data base records safe for the patient.	4%	9%	0%	0%	0%	0%	50%	0%
Easily accessible anywhere and are universal	4%	0%	6%	17%	0%	0%	0%	0%
It gives a perfect and reliable data outcome	7%	9%	6%	17%	0%	0%	0%	17%
To improve the quality and sustainability of healthcare systems and machines	7%	18%	0%	0%	8%	100%	0%	0%
More accurate diagnosis	37%	36%	38%	33%	67%	0%	0%	0%

Reasons why the Healthcare Personnel would try the following HARDWARE innovation-1st mention (Drones, i.e., in delivery of medical supplies)

| | Total | Gender | | State | | | | |
		Male	Female	Edo	Lagos	Niger	Ogun	Plateau
Number of Respondents	8	6	2	3	1	1	3	0
Modern Innovative technology	38%	50%	0%	33%	0%	100%	33%	0%
To improve the quality and sustainability of healthcare systems and machines	13%	17%	0%	0%	0%	0%	33%	0%
It helps to deliver medical supplies on time without stress	50%	33%	100%	67%	100%	0%	33%	0%
It is not useful for medical line	13%	17%	0%	0%	0%	0%	33%	0%

Reasons why the Healthcare Personnel would try the following HARDWARE innovation-1st mention (Robotics in surgery among others)

| | Total | Gender | | State | | | | |
		Male	Female	Edo	Lagos	Niger	Ogun	Plateau
Number of Respondents	5	2	3	3	1	1	0	0
To make work fast, ease human effort and safe	40%	50%	33%	0%	100%	100%	0%	0%
Modern Innovative technology	20%	50%	0%	33%	0%	0%	0%	0%
It gives a perfect and reliable data outcome	40%	0%	67%	67%	0%	0%	0%	0%

Reasons why the Healthcare Personnel would try the following HARDWARE innovation-2nd mention (Computers/Laptops)

| | Total | Gender | | State | | | | |
		Male	Female	Edo	Lagos	Niger	Ogun	Plateau
Number of Respondents	29	13	16	2	8	8	8	3
They are much easier to access internet and more health information	24%	15%	31%	100%	38%	13%	13%	0%
To make work fast, ease human effort and safe	14%	0%	25%	0%	0%	0%	13%	100%
To enhance and boost my knowledge	7%	8%	6%	0%	0%	13%	13%	0%
Work accurately	14%	15%	13%	0%	0%	25%	25%	0%
Modern Innovative technology	7%	15%	0%	0%	0%	13%	13%	0%
It helps allowing easy care coordination between doctors and other healthcare providers	3%	8%	0%	0%	0%	13%	0%	0%
Used for tracking lab results	10%	15%	6%	0%	25%	0%	13%	0%
It helps for documentation of important information	14%	8%	19%	50%	38%	0%	0%	0%
Keeping and monitoring data base records safe for the patient.	7%	0%	13%	0%	25%	0%	0%	0%
Easily accessible anywhere and are universal	7%	8%	6%	0%	0%	0%	25%	0%
To improve the quality and sustainability of healthcare systems and machines	21%	31%	13%	0%	0%	38%	38%	0%
It helps to deliver medical supplies on time without stress	3%	8%	0%	0%	0%	13%	0%	0%

To have a fast access to medical delivery and emergency	10%	23%	0%	0%	25%	13%	0%	0%

Reasons why the Healthcare Personnel would try the following HARDWARE innovation-2nd mention (Mobile Phones)

		Gender		State				
	Total	Male	Female	Edo	Lagos	Niger	Ogun	Plateau
Number of Respondents	**35**	**23**	**12**	**5**	**2**	**12**	**5**	**11**
They are much easier to access internet and more health information	3%	0%	8%	20%	0%	0%	0%	0%
To make work fast, ease human effort and safe	29%	26%	33%	0%	0%	50%	80%	0%
To enhance and boost my knowledge	3%	0%	8%	20%	0%	0%	0%	0%
Work accurately	3%	0%	8%	0%	0%	0%	20%	0%
Modern Innovative technology	3%	4%	0%	0%	0%	0%	0%	9%
It is reliable for communication	20%	22%	17%	0%	0%	0%	40%	45%
Easy to use and flexible as in portability	14%	13%	17%	20%	0%	17%	0%	18%
Easily accessible anywhere and are universal	23%	30%	8%	20%	50%	33%	20%	9%
It helps to keep track of the health status	3%	4%	0%	0%	50%	0%	0%	0%
To improve the quality and sustainability of healthcare systems and machines	6%	0%	17%	20%	0%	0%	0%	9%
To have a fast access to medical delivery and emergency	3%	4%	0%	20%	0%	0%	0%	0%
You can use it for training	3%	4%	0%	0%	0%	0%	0%	9%

Reasons why the Healthcare Personnel would try the following HARDWARE innovation-2nd mention (Tablets}

		Gender		State				
	Total	Male	Female	Edo	Lagos	Niger	Ogun	Plateau
Number of Respondents	**16**	**8**	**8**	**2**	**1**	**4**	**2**	**7**
They are much easier to access internet and more health information	31%	25%	38%	0%	0%	25%	0%	57%
To make work fast, ease human effort and safe	31%	13%	50%	100%	0%	0%	100%	14%
It helps for documentation of important information	6%	0%	13%	0%	0%	0%	50%	0%
Keeping and monitoring data base records safe for the patient.	6%	13%	0%	0%	0%	25%	0%	0%
Easy to use and flexible as in portability	19%	25%	13%	0%	0%	50%	0%	14%
Easily accessible anywhere and are universal	13%	25%	0%	0%	100%	0%	0%	14%
To have a fast access to medical delivery and emergency	6%	13%	0%	0%	0%	0%	0%	14%

Reasons why the Healthcare Personnel would try the following HARDWARE innovation-2nd mention (Wearables such blood pressure monitors)

		Gender		State				
	Total	Male	Female	Edo	Lagos	Niger	Ogun	Plateau
Number of Respondents	**28**	**16**	**12**	**8**	**8**	**4**	**3**	**5**

To make work fast, ease human effort and safe	18%	25%	8%	38%	0%	25%	0%	20%
To enhance and boost my knowledge	4%	6%	0%	0%	0%	25%	0%	0%
Modern Innovative technology	11%	6%	17%	0%	0%	0%	33%	40%
It would be less expensive compared to other facilities	7%	6%	8%	13%	0%	0%	33%	0%
It helps in monitoring the patient blood status and heartbeat	32%	25%	42%	13%	75%	25%	0%	20%
It gives a perfect and reliable data outcome	14%	13%	17%	13%	13%	25%	33%	0%
Does not require special training hence can be used by everyone	18%	25%	8%	25%	13%	25%	0%	20%
To have a fast access to medical delivery and emergency	4%	6%	0%	13%	0%	0%	0%	0%

Reasons why the Healthcare Personnel would try the following HARDWARE innovation-2nd mention (Digital diagnostics)

		Gender		State				
	Total	Male	Female	Edo	Lagos	Niger	Ogun	Plateau
Number of Respondents	**29**	**15**	**14**	**5**	**10**	**3**	**5**	**6**
To make work fast, ease human effort and safe	28%	20%	36%	40%	20%	100%	20%	0%
To enhance and boost my knowledge	3%	0%	7%	0%	0%	0%	20%	0%
Work accurately	7%	0%	14%	0%	0%	0%	40%	0%
Modern Innovative technology	10%	7%	14%	20%	0%	0%	0%	33%
Easy to use and flexible as in portability	7%	13%	0%	20%	0%	0%	0%	17%
Easily accessible anywhere and are universal	3%	7%	0%	0%	0%	0%	0%	17%
It helps in monitoring the patient blood status and heartbeat	3%	7%	0%	0%	10%	0%	0%	0%
It gives a perfect and reliable data outcome	28%	27%	29%	20%	40%	0%	20%	33%
Does not require special training hence can be used by everyone	3%	7%	0%	0%	0%	0%	20%	0%
It helps to keep track of the health status	3%	0%	7%	0%	10%	0%	0%	0%
More accurate diagnosis	10%	13%	7%	0%	30%	0%	0%	0%
To have a fast access to medical delivery and emergency	7%	7%	7%	20%	0%	0%	20%	0%

Reasons why the Healthcare Personnel would try the following HARDWARE innovation-2nd mention (Drones, i.e., in delivery of medical supplies)

		Gender		State				
	Total	Male	Female	Edo	Lagos	Niger	Ogun	Plateau
Number of Respondents	**12**	**4**	**8**	**5**	**3**	**0**	**4**	**0**
To make work fast, ease human effort and safe	17%	25%	13%	20%	33%	0%	0%	0%
It would be less expensive compared to other facilities	8%	0%	13%	0%	33%	0%	0%	0%

	Total							
To improve the quality and sustainability of healthcare systems and machines	8%	0%	13%	0%	0%	0%	25%	0%
It helps to deliver medical supplies on time without stress	25%	25%	25%	60%	0%	0%	0%	0%
To have a fast access to medical delivery and emergency	17%	25%	13%	0%	33%	0%	25%	0%
You can use it for training	25%	25%	25%	20%	67%	0%	0%	0%
Nothing	17%	0%	25%	0%	0%	0%	50%	0%

Reasons why the Healthcare Personnel would try the following HARDWARE innovation-2nd mention (Robotics in surgery among others)

	Total	Gender		State				
		Male	Female	Edo	Lagos	Niger	Ogun	Plateau
Number of Respondents	4	1	3	1	2	0	1	0
To make work fast, ease human effort and safe	50%	100%	33%	100%	50%	0%	0%	0%
Easily accessible anywhere and are universal	25%	0%	33%	0%	0%	0%	100%	0%
Nothing	25%	0%	67%	0%	100%	0%	0%	0%

Reasons why the Healthcare Personnel would try the following HARDWARE innovation-3rd mention (Computers/Laptops)

		Gender		State				
	Total	Male	Female	Edo	Lagos	Niger	Ogun	Plateau
Number of Respondents	23	10	13	3	7	3	8	2
They are much easier to access internet and more health information	22%	20%	23%	0%	29%	0%	38%	0%
To make work fast, ease human effort and safe	22%	20%	23%	0%	14%	0%	38%	50%
To enhance and boost my knowledge	4%	0%	8%	0%	0%	0%	0%	50%
Work accurately	4%	10%	0%	0%	0%	0%	0%	50%
It helps for documentation of important information	22%	20%	23%	33%	57%	0%	0%	0%
Keeping and monitoring data base records safe for the patient.	9%	10%	8%	0%	14%	0%	13%	0%
It is reliable for communication	4%	0%	8%	0%	14%	0%	0%	0%
Easy to use and flexible as in portability	4%	0%	8%	0%	0%	33%	0%	0%
Easily accessible anywhere and are universal	13%	20%	8%	0%	0%	33%	25%	0%
It would be less expensive compared to other facilities	13%	10%	15%	67%	0%	0%	13%	0%
It gives a perfect and reliable data outcome	4%	10%	0%	0%	0%	33%	0%	0%

Reasons why the Healthcare Personnel would try the following HARDWARE innovation-3rd mention (Mobile Phones)

		Gender		State				
	Total	Male	Female	Edo	Lagos	Niger	Ogun	Plateau
Number of Respondents	13	5	8	3	4	0	3	3
They are much easier to access internet and more health information	8%	0%	13%	0%	0%	0%	33%	0%
To make work fast, ease human	23%	20%	25%	0%	0%	0%	67%	33%

effort and safe							
It helps allowing easy care coordination between doctors and other healthcare providers	8%	0%	13%	0%	0%	0%	33%	0%
Keeping and monitoring data base records safe for the patient.	8%	0%	13%	0%	0%	0%	33%	0%
It is reliable for communication	31%	20%	38%	33%	50%	0%	0%	33%
Easy to use and flexible as in portability	8%	0%	13%	0%	25%	0%	0%	0%
Easily accessible anywhere and are universal	8%	20%	0%	0%	25%	0%	0%	0%
It would be less expensive compared to other facilities	8%	20%	0%	33%	0%	0%	0%	0%
To improve the quality and sustainability of healthcare systems and machines	8%	20%	0%	33%	0%	0%	0%	0%
Nothing	8%	0%	13%	0%	0%	0%	0%	33%

Reasons why the Healthcare Personnel would try the following HARDWARE innovation-3rd mention (Tablets}		Gender		State				
	Total	Male	Female	Edo	Lagos	Niger	Ogun	Plateau
Number of Respondents	37	23	14	3	1	17	7	9
They are much easier to access internet and more health information	5%	9%	0%	0%	0%	6%	0%	11%
To make work fast, ease human effort and safe	41%	26%	64%	33%	0%	29%	43%	67%
It helps for documentation of important information	11%	4%	21%	33%	0%	6%	29%	0%
Keeping and monitoring data base records safe for the patient.	3%	0%	7%	0%	0%	0%	14%	0%
Easy to use and flexible as in portability	14%	17%	7%	33%	0%	18%	0%	11%
Easily accessible anywhere and are universal	24%	35%	7%	0%	100%	47%	0%	0%
To improve the quality and sustainability of healthcare systems and machines	3%	0%	7%	33%	0%	0%	0%	0%
To have a fast access to medical delivery and emergency	3%	0%	7%	0%	0%	0%	14%	0%
You can use it for training	3%	4%	0%	0%	0%	0%	0%	11%
Nothing	5%	9%	0%	0%	0%	0%	29%	0%

Reasons why the Healthcare Personnel would try the following HARDWARE innovation-3rd mention (Wearables such blood pressure monitors)		Gender		State				
	Total	Male	Female	Edo	Lagos	Niger	Ogun	Plateau
Number of Respondents	27	16	11	4	6	5	5	7
To make work fast, ease human effort and safe	11%	6%	18%	0%	17%	20%	0%	14%
Work accurately	7%	13%	0%	0%	0%	20%	0%	14%
Keeping and monitoring data base records safe for the patient.	4%	0%	9%	25%	0%	0%	0%	0%
It is reliable for communication	4%	6%	0%	0%	0%	20%	0%	0%
Easy to use and flexible as in portability	4%	0%	9%	0%	17%	0%	0%	0%
Easily accessible anywhere and are universal	4%	0%	9%	0%	0%	0%	0%	14%

It helps in monitoring the patient blood status and heartbeat	22%	25%	18%	25%	50%	20%	0%	14%
It gives a perfect and reliable data outcome	26%	25%	27%	0%	33%	40%	60%	0%
To improve the quality and sustainability of healthcare systems and machines	7%	6%	9%	0%	0%	0%	20%	14%
More accurate diagnosis	19%	31%	0%	25%	0%	20%	20%	29%
You can use it for training	4%	0%	9%	25%	0%	0%	0%	0%

Reasons why the Healthcare Personnel would try the following HARDWARE innovation-3rd mention (Digital diagnostics)

		Gender		State				
	Total	Male	Female	Edo	Lagos	Niger	Ogun	Plateau
Number of Respondents	24	11	13	4	10	2	3	5
To make work fast, ease human effort and safe	17%	18%	15%	0%	20%	50%	33%	0%
Work accurately	8%	0%	15%	25%	10%	0%	0%	0%
Modern Innovative technology	4%	9%	0%	0%	0%	0%	0%	20%
It would be less expensive compared to other facilities	4%	0%	8%	25%	0%	0%	0%	0%
It gives a perfect and reliable data outcome	25%	27%	23%	25%	10%	0%	100%	20%
It helps to keep track of the health status	17%	27%	8%	0%	30%	0%	0%	20%
To improve the quality and sustainability of healthcare systems and machines	13%	18%	8%	0%	20%	0%	0%	20%
More accurate diagnosis	25%	18%	31%	25%	40%	0%	0%	20%
To have a fast access to medical delivery and emergency	4%	9%	0%	0%	10%	0%	0%	0%
30	8%	0%	15%	0%	10%	50%	0%	0%
Nothing	4%	9%	0%	0%	0%	0%	0%	20%

Reasons why the Healthcare Personnel would try the following HARDWARE innovation-3rd mention (Drones, i.e., in delivery of medical supplies)

		Gender		State				
	Total	Male	Female	Edo	Lagos	Niger	Ogun	Plateau
Number of Respondents	9	5	4	3	2	2	1	1
To make work fast, ease human effort and safe	11%	20%	0%	0%	0%	50%	0%	0%
Work accurately	22%	20%	25%	0%	50%	50%	0%	0%
More accurate diagnosis	11%	20%	0%	0%	0%	0%	0%	100%
It helps to deliver medical supplies on time without stress	56%	60%	50%	67%	50%	50%	100%	0%
To have a fast access to medical delivery and emergency	22%	20%	25%	33%	0%	0%	100%	0%

Reasons why the Healthcare Personnel would try the following HARDWARE innovation-3rd mention (Robotics in surgery among others)

		Gender		State				
	Total	Male	Female	Edo	Lagos	Niger	Ogun	Plateau
Number of Respondents	7	4	3	1	3	2	0	1

To make work fast, ease human effort and safe	29%	50%	0%	0%	0%	100%	0%	0%
To enhance and boost my knowledge	43%	50%	33%	0%	67%	0%	0%	100%
It helps to keep track of the health status	14%	0%	33%	100%	0%	0%	0%	0%
To have a fast access to medical delivery and emergency	14%	0%	33%	0%	33%	0%	0%	0%

ANNEX B: Reasons why the Healthcare Personnel would try the following applications, platforms, or software innovations-1st mention (Telemedicine/telemonitoring)1st, 2nd and 3rd Mentions

Reasons why the Healthcare Personnel would try the following APPLICATIONS, PLATFORMS or SOFTWARE innovations-1st mention (Telemedicine/telemonitoring)								
		Gender		State				
	Total	Male	Female	Edo	Lagos	Niger	Ogun	Plateau
Number of Respondents	19	11	8	5	7	4	3	0
To ease workloads	21%	18%	25%	40%	0%	25%	33%	0%
Somewhat dependable	5%	9%	0%	0%	0%	25%		0%
Keeps the relationship between the patient and doctor/nurse	16%	18%	13%	0%	43%	0%	0%	0%
It is a new innovation in the health care system	5%	0%	13%	20%	0%	0%	0%	0%
It saves cost	5%	0%	13%	20%	0%	0%	0%	0%
Make health care to be accessible from afar	16%	9%	25%	40%	0%	25%	0%	0%
The results gotten from this is usually accurate and believable	21%	9%	38%	0%	0%	25%	100%	0%
It is not stressing, easy to use	11%	18%	0%	0%	29%	0%	0%	0%
To be able to dispends the right medicine at the right time	5%	9%	0%	0%	14%	0%	0%	0%
Give updates about health issues	5%	9%	0%	0%	14%	0%	0%	0%
It will help to care for patients to manage health conditions	5%	9%	0%	0%	14%	0%	0%	0%

Reasons why the Healthcare Personnel would try the following APPLICATIONS, PLATFORMS or SOFTWARE innovations-1st mention(e-medicine/e-health)								
		Gender		State				
	Total	Male	Female	Edo	Lagos	Niger	Ogun	Plateau
Sample	21	9	12	4	10	3	2	2
To ease workloads	5%	11%	0%	0%	0%	33%	0%	0%
Keeps the relationship between the patient and doctor/nurse	5%	0%	8%	25%	0%	0%	0%	0%
It saves cost	5%	0%	8%	0%	0%	0%	50%	0%
Make health care to be accessible from afar	5%	0%	8%	25%	0%	0%	0%	0%
The results gotten from this is usually accurate and believable	5%	0%	8%	0%	0%	0%	50%	0%
The world is going digital now	5%	11%	0%	0%	0%	0%	0%	50%
To gain more knowledge and train for it	14%	11%	17%	0%	10%	33%	0%	50%
Easier working environment	5%	0%	8%	0%	0%	33%	0%	0%
It will help in diagnosis of patients and collect medical records	10%	11%	8%	25%	10%	0%	0%	0%
Quick response to patient	5%	0%	8%	25%	0%	0%	0%	0%
First aid is necessary in the area of emergency like accident	19%	11%	25%	0%	40%	0%	0%	0%
It will help make patients not visit hospital frequently on health-related issues	14%	33%	0%	0%	20%	33%	0%	0%
Patient can easily learn important information of drugs before using them	10%	11%	8%	0%	20%	0%	0%	0%

Reasons why the Healthcare Personnel would try the following APPLICATIONS, PLATFORMS or SOFTWARE innovations-1st mention (Mobile Phones SMS Services)								
		Gender		State				
	Total	Male	Female	Edo	Lagos	Niger	Ogun	Plateau
Sample	32	21	11	3	4	10	4	11
Somewhat dependable	6%	10%	0%	0%	0%	20%	0%	0%
Keeps the relationship between the patient and doctor/nurse	6%	5%	9%	0%	25%	0%	0%	9%
It is a new innovation in the health care system	3%	5%	0%	33%	0%	0%	0%	0%
It saves cost	9%	10%	9%	0%	0%	0%	0%	27%
Make health care to be accessible from afar	3%	5%	0%	0%	0%	0%	25%	0%
To gain more knowledge and train for it	3%	5%	0%	0%	0%	10%	0%	0%
Quick response to patient	6%	5%	9%	0%	0%	10%	0%	9%
Easy and fast for communication and information	34%	33%	36%	67%	50%	30%	0%	36%
To be more efficient in the services delivery	22%	14%	36%	0%	25%	30%	25%	18%
Nothing	6%	10%	0%	0%	0%	0%	50%	0%

Reasons why the Healthcare Personnel would try the following APPLICATIONS, PLATFORMS or SOFTWARE innovations-1st mention (Mobile Phones Apps)								
		Gender		State				
	Total	Male	Female	Edo	Lagos	Niger	Ogun	Plateau
Number of Respondents	29	16	13	4	1	9	5	10
To ease workloads	10%	0%	23%	0%	100%	11%	20%	0%
Keeps the relationship between the patient and doctor/nurse	3%	6%	0%	0%	0%	11%	0%	0%
Make health care to be accessible from afar	7%	6%	8%	0%	0%	0%	0%	20%
Give updates about health issues	3%	0%	8%	0%	0%	0%	0%	10%
To gain more knowledge and train for it	10%	0%	23%	0%	0%	0%	20%	20%
Patient can easily learn important information of drugs before using them	17%	19%	15%	25%	0%	11%	0%	30%
Easy and fast for communication and information	24%	25%	23%	25%	0%	22%	40%	20%
To be more efficient in the services delivery	3%	6%	0%	25%	0%	0%	0%	0%
We all use mobile phones are portable, handy, and safe	14%	25%	0%	0%	0%	44%	0%	0%
With Mobile it will be easier to subscribe to the required apps	3%	6%	0%	25%	0%	0%	0%	0%
Nothing	7%	6%	8%	0%	0%	0%	40%	0%

Reasons why the Healthcare Personnel would try the following APPLICATIONS, PLATFORMS or SOFTWARE innovations-1st mention (e-medicine/e-health)		Gender		State				
	Total	Male	Female	Edo	Lagos	Niger	Ogun	Plateau
Number of Respondents	21	9	12	4	10	3	2	2
To ease workloads	5%	11%	0%	0%	0%	33%	0%	0%
Keeps the relationship between the patient and doctor/nurse	5%	0%	8%	25%	0%	0%	0%	0%
It saves cost	5%	0%	8%	0%	0%	0%	50%	0%
Make health care to be accessible from afar	5%	0%	8%	25%	0%	0%	0%	0%
The results gotten from this is usually accurate and believable	5%	0%	8%	0%	0%	0%	50%	0%
The world is going digital now	5%	11%	0%	0%	0%	0%	0%	50%
To gain more knowledge and train for it	14%	11%	17%	0%	10%	33%	0%	50%
Easier working environment	5%	0%	8%	0%	0%	33%	0%	0%
It will help in diagnosis of patients and collect medical records	10%	11%	8%	25%	10%	0%	0%	0%
Quick response to patient	5%	0%	8%	25%	0%	0%	0%	0%
First aid is necessary in the area of emergency like accident	19%	11%	25%	0%	40%	0%	0%	0%
It will help make patients not visit hospital frequently on health-related issues	14%	33%	0%	0%	20%	33%	0%	0%
Patient can easily learn important information of drugs before using them	10%	11%	8%	0%	20%	0%	0%	0%

Reasons why the Healthcare Personnel would try the following APPLICATIONS, PLATFORMS or SOFTWARE innovations-1st mention (Mobile Phones SMS Services)		Gender		State				
	Total	Male	Female	Edo	Lagos	Niger	Ogun	Plateau
Number of Respondents	**32**	**21**	**11**	**3**	**4**	**10**	**4**	**11**
Somewhat dependable	6%	10%	0%	0%	0%	20%	0%	0%
Keeps the relationship between the patient and doctor/nurse	6%	5%	9%	0%	25%	0%	0%	9%
It is a new innovation in the health care system	3%	5%	0%	33%	0%	0%	0%	0%
It saves cost	9%	10%	9%	0%	0%	0%	0%	27%
Make health care to be accessible from afar	3%	5%	0%	0%	0%	0%	25%	0%
To gain more knowledge and train for it	3%	5%	0%	0%	0%	10%	0%	0%
Quick response to patient	6%	5%	9%	0%	0%	10%	0%	9%
Easy and fast for communication and information	34%	33%	36%	67%	50%	30%	0%	36%
To be more efficient in the services delivery	22%	14%	36%	0%	25%	30%	25%	18%
Nothing	6%	10%	0%	0%	0%	0%	50%	0%

Reasons why the Healthcare Personnel would try the following APPLICATIONS, PLATFORMS or SOFTWARE innovations-1st mention (Mobile Phones Apps)								
		Gender		State				
	Total	Male	Female	Edo	Lagos	Niger	Ogun	Plateau
Number of Respondents	29	16	13	4	1	9	5	10
To ease workloads	10%	0%	23%	0%	100%	11%	20%	0%
Keeps the relationship between the patient and doctor/nurse	3%	6%	0%	0%	0%	11%	0%	0%
Make health care to be accessible from afar	7%	6%	8%	0%	0%	0%	0%	20%
Give updates about health issues	3%	0%	8%	0%	0%	0%	0%	10%
To gain more knowledge and train for it	10%	0%	23%	0%	0%	0%	20%	20%
Patient can easily learn important information of drugs before using them	17%	19%	15%	25%	0%	11%	0%	30%
Easy and fast for communication and information	24%	25%	23%	25%	0%	22%	40%	20%
To be more efficient in the services delivery	3%	6%	0%	25%	0%	0%	0%	0%
We all use mobile phones are portable, handy, and safe	14%	25%	0%	0%	0%	44%	0%	0%
With Mobile it will be easier to subscribe to the required apps	3%	6%	0%	25%	0%	0%	0%	0%
Nothing	7%	6%	8%	0%	0%	0%	40%	0%

Reasons why the Healthcare Personnel would try the following APPLICATIONS, PLATFORMS or SOFTWARE innovations-1st mention (Artificial Intelligence)								
		Gender		State				
	Total	Male	Female	Edo	Lagos	Niger	Ogun	Plateau
Number of Respondents	5	2	3	1	2	2	0	0
To ease workloads	20%	0%	33%	100%	0%	0%	0%	0%
To gain more knowledge and train for it	20%	50%	0%	0%	0%	50%	0%	0%
It will help to keep and monitor one health condition	20%	0%	33%	0%	50%	0%	0%	0%
It helps to take medical practice to higher level	20%	0%	33%	0%	50%	0%	0%	0%
To sometimes serves as a reminder to work progress at a tired time	20%	50%	0%	0%	0%	50%	0%	0%

Reasons why the Healthcare Personnel would try the following APPLICATIONS, PLATFORMS or SOFTWARE innovations-1st mention (Digital platforms i.e., digital health)								
		Gender		State				
	Total	Male	Female	Edo	Lagos	Niger	Ogun	Plateau
Number of Respondents	14	6	8	5	4	1	2	2
To ease workloads	21%	33%	13%	20%	0%	100%	50%	0%
It is a new innovation in the health care system	7%	17%	0%	20%	0%	0%	0%	0%
Give updates about health issues	7%	0%	13%	0%	25%	0%	0%	0%
It will help to care for patients to manage health conditions	21%	0%	38%	0%	75%	0%	0%	0%

To gain more knowledge and train for it	21%	17%	25%	40%	0%	0%	0%	50%
Quick response to patient	7%	17%	0%	20%	0%	0%	0%	0%
Not functional in this organization	7%	17%	0%	0%	0%	0%	0%	50%
Nothing	7%	0%	13%	0%	0%	0%	50%	0%

Reasons why the Healthcare Personnel would try the following APPLICATIONS, PLATFORMS or SOFTWARE innovations-1st mention (Online/Internet)								
		Gender		State				
	Total	Male	Female	Edo	Lagos	Niger	Ogun	Plateau
Number of Respondents	12	5	7	0	0	2	7	3
Give updates about health issues	33%	20%	43%	0%	0%	50%	29%	33%
It will help to care for patients to manage health conditions	17%	0%	29%	0%	0%	0%	29%	0%
To gain more knowledge and train for it	17%	40%	0%	0%	0%	50%	0%	33%
Patient can easily learn important information of drugs before using them	8%	0%	14%	0%	0%	0%	14%	0%
Easy and fast for communication and information	8%	20%	0%	0%	0%	0%	0%	33%
Nothing	17%	20%	14%	0%	0%	0%	29%	0%

Reasons why the Healthcare Personnel would try the following APPLICATIONS, PLATFORMS or SOFTWARE innovations-1st mention (Health Care Data Bases)								
		Gender		State				
	Total	Male	Female	Edo	Lagos	Niger	Ogun	Plateau
Number of Respondents	4	2	2	1	2	0	0	1
To ease workloads	25%	50%	0%	100%	0%	0%	0%	0%
It will help to keep and monitor one health condition	75%	50%	100%	0%	100%	0%	0%	100%

Reasons why the Healthcare Personnel would try the following APPLICATIONS, PLATFORMS or SOFTWARE innovations-1st mention (Specialized Software)								
		Gender		State				
	Total	Male	Female	Edo	Lagos	Niger	Ogun	Plateau
Number of Respondents	2	0	2	1	1	0	0	0
To gain more knowledge and train for it	50%	0%	50%	0%	100%	0%	0%	0%
To sometimes serves as a reminder to work progress at a tired time	50%	0%	50%	100%	0%	0%	0%	0%

Reasons why the Healthcare Personnel would try the following APPLICATIONS, PLATFORMS or SOFTWARE innovations-1st mention (Big Data)								
		Gender		State				
	Total	Male	Female	Edo	Lagos	Niger	Ogun	Plateau
Number of Respondents	2	0	2	0	0	0	1	1

To gain more knowledge and train for it	100%	0%	100%	100%	100%	100%	100%	100%

Reasons why the Healthcare Personnel would try the following APPLICATIONS, PLATFORMS or SOFTWARE innovations-1st mention (Internet of Things in the Healthcare)								
		Gender		**State**				
	Total	**Male**	**Female**	**Edo**	**Lagos**	**Niger**	**Ogun**	**Plateau**
Number of Respondents	**2**	**2**	**0**		**1**	**0**	**0**	**1**
Easy and fast for communication and information	50%	50%	0%	0%	0%	0%	0%	100%
With Mobile it will be easier to subscribe to the required apps	50%	50%	0%	100%	100%	0%	0%	0%

Reasons why the Healthcare Personnel would try the following APPLICATIONS, PLATFORMS or SOFTWARE innovations-1st mention (Machine Learning)								
		Gender		**State**				
	Total	**Male**	**Female**	**Edo**	**Lagos**	**Niger**	**Ogun**	**Plateau**
Number of Respondents	**1**	**0**	**1**	**0**	**1**	**0**	**0**	**0**
Just to improve performance	100%	0%	100%	0%	100%	0%	0%	0%

Reasons why the Healthcare Personnel would try the following APPLICATIONS, PLATFORMS or SOFTWARE innovations-1st mention (e-training for medical personnel)								
		Gender		**State**				
	Total	**Male**	**Female**	**Edo**	**Lagos**	**Niger**	**Ogun**	**Plateau**
Number of Respondents	**8**	**5**	**3**	**1**	**0**	**0**	**4**	**3**
It saves cost	13%	20%	0%	100%	0%	0%	0%	0%
To gain more knowledge and train for it	50%	40%	67%	0%	0%	0%	25%	100%
To be more efficient in the services delivery	25%	20%	33%	0%	0%	0%	50%	0%
It helps to take medical practice to higher level	13%	20%	0%	0%	0%	0%	25%	0%

Reasons why the Healthcare Personnel would try the following APPLICATIONS, PLATFORMS or SOFTWARE innovations-1st mention (Blockchain)								
		Gender		**State**				
	Total	**Male**	**Female**	**Edo**	**Lagos**	**Niger**	**Ogun**	**Plateau**
Number of Respondents	**1**	**0**	**1**	**0**	**1**	**0**	**0**	**0**
It helps in maintains a decentralized and secure record	100%	0%	100%	0%	100%	0%	0%	0%

Reasons why the Healthcare Personnel would try the following APPLICATIONS, PLATFORMS or SOFTWARE innovations-1st mention (Virtual reality (metaverse)								
		Gender		**State**				
	Total	**Male**	**Female**	**Edo**	**Lagos**	**Niger**	**Ogun**	**Plateau**
Number of Respondents	**1**	**1**	**0**	**1**	**0**	**0**	**0**	**0**
To be more efficient in the services delivery	100%	100%	0%	100%	0%	0%	0%	0%

Reasons why the Healthcare Personnel would try the following APPLICATIONS, PLATFORMS or SOFTWARE innovations-2nd mention (Telemedicine/telemonitoring)

	Total	Gender		State				
		Male	Female	Edo	Lagos	Niger	Ogun	Plateau
Number of Respondents	**9**	**5**	**4**	**2**	**5**	**0**	**2**	**0**
It will help make patients not visit hospital frequently on health-related issues	44%	60%	25%	0%	80%	0%	0%	0%
Easy and fast for communication and information	11%	0%	25%	0%	0%	0%	50%	0%
To be more efficient in the services delivery	33%	40%	25%	100%	0%	0%	50%	0%
It will help to keep and monitor one health condition	11%	0%	25%	0%	20%	0%	0%	0%

Reasons why the Healthcare Personnel would try the following APPLICATIONS, PLATFORMS or SOFTWARE innovations-2nd mention (e-medicine/e-health)

	Total	Gender		State				
		Male	Female	Edo	Lagos	Niger	Ogun	Plateau
Number of Respondents	**12**	**8**	**4**	**2**	**0**	**4**	**4**	**2**
To ease workloads	33%	25%	50%	50%	0%	50%	0%	50%
It saves cost	8%	0%	25%	0%	0%	0%	25%	0%
It is not stressing, easy to use	17%	13%	25%	0%	0%	25%	25%	0%
To be able to dispense the right medicine at the right time	8%	13%	0%	0%	0%	25%	0%	0%
Easier working environment	8%	13%	0%	0%	0%	0%	0%	50%
To be more efficient in the services delivery	8%	13%	0%	50%	0%	0%	0%	0%
Nothing	17%	25%	0%	0%	0%	0%	50%	0%

Reasons why the Healthcare Personnel would try the following APPLICATIONS, PLATFORMS or SOFTWARE innovations-2nd mention (Mobile Phones SMS Services)

	Total	Gender		State				
		Male	Female	Edo	Lagos	Niger	Ogun	Plateau
Number of Respondents	**25**	**17**	**8**	**3**	**2**	**11**	**1**	**8**
To ease workloads	4%	6%	0%	0%	0%	9%	0%	0%
It saves cost	8%	6%	13%	67%	0%	0%	0%	0%
Give updates about health issues	8%	0%	25%	0%	0%	9%	0%	13%
Quick response to patient	12%	18%	0%	0%	0%	9%	0%	25%
First aid is necessary in the area of emergency like accident	4%	0%	13%	0%	50%	0%	0%	0%
Easy and fast for communication and information	24%	29%	13%	0%	50%	27%	0%	25%
To be more efficient in the services delivery	8%	12%	0%	0%	0%	9%	0%	13%
We all use mobile phones are portable, handy, and safe	28%	24%	38%	33%	0%	27%	100%	25%
With Mobile it will be easier to subscribe to the required apps	4%	6%	0%	0%	0%	9%	0%	0%

To sometimes serves as a reminder to work progress at a tired time	4%	6%	0%	0%	50%	0%	0%	0%

Reasons why the Healthcare Personnel would try the following APPLICATIONS, PLATFORMS or SOFTWARE innovations-2nd mention (Mobile Phones Apps)								
		Gender		State				
	Total	Male	Female	Edo	Lagos	Niger	Ogun	Plateau
Number of Respondents	**34**	**22**	**12**	**4**	**4**	**10**	**6**	**10**
To ease workloads	15%	14%	17%	0%	25%	20%	0%	20%
It saves cost	9%	9%	8%	75%	0%	0%	0%	0%
To be able to dispense the right medicine at the right time	3%	5%	0%	0%	25%	0%	0%	0%
Give updates about health issues	6%	5%	8%	25%	0%	0%	0%	10%
To gain more knowledge and train for it	3%	0%	8%	0%	0%	0%	0%	10%
It will help in diagnosis of patients and collect medical records	3%	0%	8%	0%	25%	0%	0%	0%
Quick response to patient	6%	5%	8%	0%	0%	0%	33%	0%
Easy and fast for communication and information	21%	27%	8%	0%	0%	20%	0%	50%
To be more efficient in the services delivery	3%	0%	8%	0%	25%	0%	0%	0%
We all use mobile phones are portable, handy, and safe	12%	18%	0%	0%	0%	40%	0%	0%
With Mobile it will be easier to subscribe to the required apps	15%	23%	0%	0%	50%	20%	0%	10%
To sometimes serves as a reminder to work progress at a tired time	3%	0%	8%	25%	0%	0%	0%	0%
Not functional in this organization	3%	5%	0%	0%	0%	0%	17%	0%
Nothing	9%	5%	17%	0%	0%	0%	50%	0%

Reasons why the Healthcare Personnel would try the following APPLICATIONS, PLATFORMS or SOFTWARE innovations-2nd mention (Artificial Intelligence)								
		Gender		State				
	Total	Male	Female	Edo	Lagos	Niger	Ogun	Plateau
Number of Respondents	**5**	**0**	**5**	**2**	**2**	**0**	**0**	**1**
It is a new innovation in the health care system	20%	0%	20%	50%	0%	0%	0%	0%
It will help to care for patients to manage health conditions	20%	0%	20%	0%	50%	0%	0%	0%
It´s the best forms of making all required facilities especially to remote areas like ours	20%	0%	20%	50%	0%	0%	0%	0%
It will help in solving a lot of medicine issues	40%	0%	40%	0%	100%	0%	0%	0%
So I can remain relevant in my work and professional in the system	20%	0%	20%	0%	0%	0%	0%	100%

Reasons why the Healthcare Personnel would try the following APPLICATIONS, PLATFORMS or SOFTWARE innovations-2nd mention (Digital platforms i.e., digital health)								
		Gender		State				
	Total	Male	Female	Edo	Lagos	Niger	Ogun	Plateau

Number of Respondents	11	5	6	2	5	2	2	0
To ease workloads	9%	20%	0%	0%	20%	0%	0%	0%
It is a new innovation in the health care system	9%	20%	0%	0%	20%	0%	0%	0%
Give updates about health issues	9%	0%	17%	50%	0%	0%	0%	0%
It will help to care for patients to manage health conditions	9%	20%	0%	0%	20%	0%	0%	0%
Its will help in diagnosis of patients and collect medical records	9%	20%	0%	0%	0%	50%	0%	0%
Quick response to patient	9%	0%	17%	0%	20%	0%	0%	0%
Patient can easily learn important information of drugs before using them	9%	0%	17%	50%	0%	0%	0%	0%
Easy and fast for communication and information	9%	20%	0%	50%	0%	0%	0%	0%
Easier and more information will be leaned and gathered	27%	20%	33%	0%	20%	50%	50%	0%
It brings us nearer to the foreign policy	9%	0%	17%	0%	0%	0%	50%	0%
It will help influence decision in the hospital	9%	0%	17%	0%	20%	0%	0%	0%

Reasons why the Healthcare Personnel would try the following APPLICATIONS, PLATFORMS or SOFTWARE innovations-2nd mention (Online/Internet)								
		Gender		State				
	Total	Male	Female	Edo	Lagos	Niger	Ogun	Plateau
Number of Respondents	11	2	9	0	2	0	5	4
To ease workloads	9%	0%	11%	0%	0%	0%	0%	25%
It is not stressing, easy to use	9%	0%	11%	0%	0%	0%	20%	0%
Give updates about health issues	18%	0%	22%	0%	0%	0%	40%	0%
The world is going digital now	9%	0%	11%	0%	0%	0%	20%	0%
To gain more knowledge and train for it	18%	0%	22%	0%	0%	0%	20%	25%
Easy and fast for communication and information	18%	50%	11%	0%	50%	0%	0%	25%
It helps to take medical practice to higher level	9%	50%	0%	0%	0%	0%	0%	25%
Just to improve performance	9%	0%	11%	0%	50%	0%	0%	0%
Nothing	9%	0%	11%	0%	0%	0%	20%	0%

Reasons why the Healthcare Personnel would try the following APPLICATIONS, PLATFORMS or SOFTWARE innovations-2nd mention (Health Care Data Bases)								
		Gender		State				
	Total	Male	Female	Edo	Lagos	Niger	Ogun	Plateau
Number of Respondents	3	1	2	2	1	0	0	0
So I can remain relevant in my work and professional in the system	100%	100%	100%	100%	100%	0%	0%	0%

Reasons why the Healthcare Personnel would try the following APPLICATIONS, PLATFORMS or

SOFTWARE innovations-2nd mention (Specialized Software)

	Total	Gender		State				
		Male	Female	Edo	Lagos	Niger	Ogun	Plateau
Number of Respondents	9	5	4	1	7	0	0	1
To gain more knowledge and train for it	11%	0%	25%	0%	14%	0%	0%	0%
It will help in diagnosis of patients and collect medical records	44%	40%	50%	0%	57%	0%	0%	0%
To be more efficient in the services delivery	11%	20%	0%	100%	0%	0%	0%	0%
It helps in maintains a decentralized and secure record	11%	20%	0%	0%	0%	0%	0%	100%
It will help in solving a lot of medicine issues	11%	0%	25%	0%	14%	0%	0%	0%
Easier and more information will be leaned and gathered	11%	20%	0%	0%	14%	0%	0%	0%

Reasons why the Healthcare Personnel would try the following APPLICATIONS, PLATFORMS or SOFTWARE innovations-2nd mention (Big Data)

	Total	Gender		State				
		Male	Female	Edo	Lagos	Niger	Ogun	Plateau
Number of Respondents	1	1	0	0	0	1	0	0
Easier and more information will be leaned and gathered	100%	100%	0%	0%	0%	100%	0%	0%

Reasons why the Healthcare Personnel would try the following APPLICATIONS, PLATFORMS or SOFTWARE innovations-2nd mention (Internet of Things in the Healthcare)

	Total	Gender		State				
		Male	Female	Edo	Lagos	Niger	Ogun	Plateau
Number of Respondents	10	3	7	3	1	0	3	3
Give updates about health issues	10%	33%	0%	0%	0%	0%	33%	0%
To gain more knowledge and train for it	30%	67%	14%	67%	0%	0%	0%	33%
Patient can easily learn important information of drugs before using them	10%	0%	14%	0%	100%	0%	0%	0%
Easy and fast for communication and information	20%	33%	14%	0%	0%	0%	33%	33%
To be more efficient in the services delivery	20%	0%	29%	33%	0%	0%	0%	33%
It will help in solving a lot of medicine issues	20%	0%	29%	0%	0%	0%	67%	0%

Reasons why the Healthcare Personnel would try the following APPLICATIONS, PLATFORMS or SOFTWARE innovations-2nd mention (Machine Learning)

	Total	Gender		State				
		Male	Female	Edo	Lagos	Niger	Ogun	Plateau
Number of Respondents	4	3	1	2	0	0	1	1
It is a new innovation in the health care system	25%	0%	100%	50%	0%	0%	0%	0%
Just to improve performance	75%	100%	0%	50%	0%	0%	100%	100%

Reasons why the Healthcare Personnel would try the following APPLICATIONS, PLATFORMS or SOFTWARE innovations-2nd mention (e-training for medical personnel)

| | Total | Gender | | State | | | | |
		Male	Female	Edo	Lagos	Niger	Ogun	Plateau
Number of Respondents	**8**	**5**	**3**	**0**	**2**	**1**	**3**	**2**
Make health care to be accessible from afar	13%	20%	0%	0%	0%	100%	0%	0%
It is not stressing, easy to use	25%	20%	33%	0%	0%	100%	33%	0%
To gain more knowledge and train for it	63%	40%	100%	0%	50%	0%	100%	50%
Not functional in this organization	13%	20%	0%	0%	0%	0%	0%	50%
So I can remain relevant in my work and professional in the system	13%	20%	0%	0%	50%	0%	0%	0%

Reasons why the Healthcare Personnel would try the following APPLICATIONS, PLATFORMS or SOFTWARE innovations-2nd mention (Virtual reality (metaverse)

| | Total | Gender | | State | | | | |
		Male	Female	Edo	Lagos	Niger	Ogun	Plateau
Number of Respondents	**2**	**0**	**2**	**0**	**1**	**0**	**1**	**0**
It will help in diagnosis of patients and collect medical records	50%	0%	50%	0%	100%	0%	0%	0%
Not functional in this organization	50%	0%	50%	0%	0%	0%	100%	0%

Reasons why the Healthcare Personnel would try the following APPLICATIONS, PLATFORMS or SOFTWARE innovations-3rd mention (Telemedicine/telemonitoring)

| | Total | Gender | | State | | | | |
		Male	Female	Edo	Lagos	Niger	Ogun	Plateau
Number of Respondents	5	2	3	1	1	1	2	0
To ease workloads	20%	0%	33%	0%	0%	0%	50%	0%
Make health care to be accessible from afar	20%	0%	33%	100%	0%	0%	0%	0%
It will help to keep and monitor one health condition	20%	50%	0%	0%	0%	100%	0%	0%
Nothing	40%	50%	33%	0%	100%	0%	50%	0%

Reasons why the Healthcare Personnel would try the following APPLICATIONS, PLATFORMS or SOFTWARE innovations-3rd mention (e-medicine/e-health)

| | Total | Gender | | State | | | | |
		Male	Female	Edo	Lagos	Niger	Ogun	Plateau
Number of Respondents	**10**	**5**	**5**	**2**	**3**	**2**	**3**	**0**
It is a new innovation in the health care system	20%	20%	20%	50%	0%	0%	33%	0%
Make health care to be accessible from afar	10%	0%	20%	50%	0%	0%	0%	0%
First aid is necessary in the area of emergency like accident	10%	0%	20%	0%	33%	0%	0%	0%
Easy and fast for communication and information	10%	0%	20%	0%	33%	0%	0%	0%
To be more efficient in the services delivery	10%	20%	0%	0%	0%	50%	0%	0%
It will help to keep and monitor one health condition	10%	20%	0%	0%	33%	0%	0%	0%
Nothing	30%	40%	20%	0%	0%	50%	67%	0%

Reasons why the Healthcare Personnel would try the following APPLICATIONS, PLATFORMS or SOFTWARE innovations-3rd mention (Mobile Phones SMS Services)

	Total	Gender		State				
		Male	Female	Edo	Lagos	Niger	Ogun	Plateau
Number of Respondents	**8**	**4**	**4**	**2**	**2**	**2**	**2**	**0**
To ease workloads	13%	25%	0%	0%	0%	50%	0%	0%
Easy and fast for communication and information	50%	50%	50%	100%	50%	50%	0%	0%
To sometimes serves as a reminder to work progress at a tired time	13%	0%	25%	0%	50%	0%	0%	0%
Nothing	25%	25%	25%	0%	0%	0%	100%	0%

Reasons why the Healthcare Personnel would try the following APPLICATIONS, PLATFORMS or SOFTWARE innovations-3rd mention (Mobile Phones Apps)

	Total	Gender		State				
		Male	Female	Edo	Lagos	Niger	Ogun	Plateau
Number of Respondents	**21**	**11**	**10**	**4**	**3**	**5**	**6**	**3**
To ease workloads	19%	27%	10%	0%	0%	80%	0%	0%
Keeps the relationship between the patient and doctor/nurse	5%	9%	0%	0%	0%	20%	0%	0%
Make health care to be accessible from afar	5%	9%	0%	0%	0%	0%	0%	33%
Give updates about health issues	14%	18%	10%	25%	33%	0%	17%	0%
To gain more knowledge and train for it	14%	18%	10%	25%	0%	0%	0%	67%
It will help in diagnosis of patients and collect medical records	10%	0%	20%	25%	0%	0%	17%	0%
Patient can easily learn important information of drugs before using them	5%	9%	0%	0%	33%	0%	0%	0%
We all use mobile phones are portable, handy, and safe	10%	0%	20%	25%	33%	0%	0%	0%
Easier and more information will be leaned and gathered	19%	0%	40%	0%	33%	0%	50%	0%
To secure health record treatment data and information	10%	9%	10%	0%	0%	0%	33%	0%
Nothing	5%	9%	0%	0%	0%	0%	17%	0%

Reasons why the Healthcare Personnel would try the following APPLICATIONS, PLATFORMS or SOFTWARE innovations-3rd mention (Artificial Intelligence)

	Total	Gender		State				
		Male	Female	Edo	Lagos	Niger	Ogun	Plateau
Number of Respondents	**6**	**3**	**3**	**3**	**0**	**2**	**0**	**1**
To ease workloads	17%	0%	33%	0%	0%	50%	0%	0%
It is a new innovation in the health care system	17%	33%	0%	33%	0%	0%	0%	0%
It is not stressing, easy to use	17%	33%	0%	0%	0%	50%	0%	0%
To gain more knowledge and train for it	17%	0%	33%	0%	0%	0%	0%	100%
Patient can easily learn important information of drugs before using them	17%	0%	33%	33%	0%	0%	0%	0%
To be more efficient in the services delivery	17%	33%	0%	33%	0%	0%	0%	0%

Reasons why the Healthcare Personnel would try the following APPLICATIONS, PLATFORMS or SOFTWARE innovations-3rd mention (Digital platforms i.e., digital health)

| | Total | Gender | | State | | | | |
		Male	Female	Edo	Lagos	Niger	Ogun	Plateau
Number of Respondents	**10**	**5**	**5**	**3**	**1**	**2**	**1**	**3**
To ease workloads	20%	20%	20%	33%	0%	50%	0%	0%
It is a new innovation in the health care system	10%	0%	20%	0%	0%	50%	0%	0%
It saves cost	10%	0%	20%	33%	0%	0%	0%	0%
Give updates about health issues	10%	20%	0%	33%	0%	0%	0%	0%
The world is going digital now	10%	0%	20%	0%	0%	0%	0%	33%
To gain more knowledge and train for it	20%	20%	20%	0%	0%	0%	0%	67%
Quick response to patient	10%	0%	20%	33%	0%	0%	0%	0%
It helps to take medical practice to higher level	10%	20%	0%	0%	100%	0%	0%	0%
Nothing	10%	20%	0%	0%	0%	0%	100%	0%

Reasons why the Healthcare Personnel would try the following APPLICATIONS, PLATFORMS or SOFTWARE innovations-3rd mention (Online/Internet)

| | Total | Gender | | State | | | | |
		Male	Female	Edo	Lagos	Niger	Ogun	Plateau
Number of Respondents	**21**	**12**	**9**	**1**	**4**	**3**	**3**	**10**
To ease workloads	19%	17%	22%	0%	0%	0%	33%	30%
It is a new innovation in the health care system	5%	8%	0%	0%	25%	0%	0%	0%
Make health care to be accessible from afar	5%	8%	0%	0%	0%	0%	0%	10%
It is not stressing, easy to use	5%	0%	11%	0%	0%	0%	33%	0%
The world is going digital now	10%	8%	11%	0%	25%	33%	0%	0%
To gain more knowledge and train for it	14%	25%	0%	0%	25%	33%	0%	10%
Easy and fast for communication and information	10%	17%	0%	0%	0%	33%	0%	10%
To be more efficient in the services delivery	10%	0%	22%	100%	25%	0%	0%	0%
We all use mobile phones are portable, handy, and safe	10%	0%	22%	0%	0%	0%	0%	20%
It will help in solving a lot of medicine issues	5%	0%	11%	0%	0%	0%	33%	0%
Nothing	14%	17%	11%	0%	25%	0%	0%	20%

Reasons why the Healthcare Personnel would try the following APPLICATIONS, PLATFORMS or SOFTWARE innovations-3rd mention (Health Care Data Bases)

| | Total | Gender | | State | | | | |
		Male	Female	Edo	Lagos	Niger	Ogun	Plateau
Number of Respondents	**11**	**5**	**6**	**1**	**2**	**2**	**4**	**2**
Give updates about health issues	9%	20%	0%	0%	0%	50%	0%	0%
It will help in diagnosis of patients and collect medical records	9%	0%	17%	0%	0%	0%	25%	0%

To secure health record treatment data and information	73%	80%	67%	100%	100%	50%	50%	100%
Nothing	9%	0%	17%	0%	0%	0%	25%	0%

Reasons why the Healthcare Personnel would try the following APPLICATIONS, PLATFORMS or SOFTWARE innovations-3rd mention (Specialized Software)

		Gender		State				
	Total	Male	Female	Edo	Lagos	Niger	Ogun	Plateau
Number of Respondents	**5**	**3**	**2**	**1**	**3**	**1**	**1**	**1**
To gain more knowledge and train for it	40%	33%	50%	0%	67%	0%	0%	0%
Easier working environment	20%	33%	0%	0%	0%	100%	0%	0%
It will help in diagnosis of patients and collect medical records	20%	0%	50%	0%	33%	0%	0%	0%
Nothing	20%	33%	0%	100%	0%	0%	0%	0%

Reasons why the Healthcare Personnel would try the following APPLICATIONS, PLATFORMS or SOFTWARE innovations-3rd mention (Big Data)

		Gender		State				
	Total	Male	Female	Edo	Lagos	Niger	Ogun	Plateau
Number of Respondents	**1**	**1**	**0**	**0**	**0**	**1**	**0**	**0**
To ease workloads	100%	100%	0%	0%	0%	100%	0%	0%

Reasons why the Healthcare Personnel would try the following APPLICATIONS, PLATFORMS or SOFTWARE innovations-3rd mention (Internet of Things in the Healthcare)

		Gender		State				
	Total	Male	Female	Edo	Lagos	Niger	Ogun	Plateau
Number of Respondents	**14**	**8**	**6**	**1**	**5**	**1**	**4**	**3**
To ease workloads	7%	13%	0%	0%	0%	0%	0%	33%
To gain more knowledge and train for it	7%	0%	17%	100%	0%	0%	0%	0%
It will help in diagnosis of patients and collect medical records	14%	25%	0%	0%	20%	100%	0%	0%
Easy and fast for communication and information	7%	13%	0%	0%	0%	0%	0%	33%
To be more efficient in the services delivery	14%	25%	0%	0%	20%	0%	0%	33%
It helps to take medical practice to higher level	7%	0%	17%	0%	0%	0%	25%	0%
It will help in solving a lot of medicine issues	14%	0%	33%	0%	20%	0%	25%	0%
Easier and more information will be leaned and gathered	29%	25%	33%	0%	40%	0%	50%	0%

Reasons why the Healthcare Personnel would try the following APPLICATIONS, PLATFORMS or SOFTWARE innovations-3rd mention (Machine Learning)

		Gender		State				
	Total	Male	Female	Edo	Lagos	Niger	Ogun	Plateau
Number of Respondents	**3**	**1**	**2**	**0**	**0**	**1**	**1**	**1**
To gain more knowledge and train for it	67%	0%	100%	0%	0%	100%	100%	0%
Easier working environment	33%	0%	50%	0%	0%	100%	0%	0%

Just to improve performance	33%	100%	0%	0%	0%	0%	0%	100%

Reasons why the Healthcare Personnel would try the following APPLICATIONS, PLATFORMS or SOFTWARE innovations-3rd mention (e-training for medical personnel)

		Gender		State				
	Total	Male	Female	Edo	Lagos	Niger	Ogun	Plateau
Number of Respondents	9	4	5	2	4	0	1	2
It saves cost	11%	0%	20%	50%	0%	0%	0%	0%
To gain more knowledge and train for it	44%	25%	60%	0%	75%	0%	100%	0%
Patient can easily learn important information of drugs before using them	11%	25%	0%	0%	25%	0%	0%	0%
So I can remain relevant in my work and professional in the system	33%	50%	20%	50%	0%	0%	0%	100%

Reasons why the Healthcare Personnel would try the following APPLICATIONS, PLATFORMS or SOFTWARE innovations-3rd mention (Blockchain)

		Gender		State				
	Total	Male	Female	Edo	Lagos	Niger	Ogun	Plateau
Number of Respondents	1		1	0	0	0	1	0
Not functional in this organization	100%		100%	0%	0%	0%	100%	0%

ANNEX C: Reasons why the Healthcare Personnel Would not try The Following Hardware Innovations 1st, 2nd And 3rd Mentions

1st Mention

Reasons why the Healthcare Personnel would NOT try the following HARDWARE innovations-1st mention (Computers/Laptops)		Gender		State				
	Total	Male	Female	Edo	Lagos	Niger	Ogun	Plateau
Number of Respondents	2	0	2	1	0	0	0	1
It is expensive	50%	0%	50%	0%	0%	0%	0%	100%
It will not be easy to carry it about	50%	0%	50%	100%	0%	0%	0%	0%

Reasons why the Healthcare Personnel would NOT try the following HARDWARE innovation-1st mention (Mobile Phones)		Gender		State				
	Total	Male	Female	Edo	Lagos	Niger	Ogun	Plateau
Number of Respondents	6	3	3	2	2	2	0	0
It will not look professional using it	33%	0%	67%	0%	100%	0%	0%	0%
It might cause distraction	17%	0%	33%	50%	0%	0%	0%	0%
They are mostly needed in health care	33%	67%	0%	0%	0%	100%	0%	0%
Its available everywhere	17%	33%	0%	50%	0%	0%	0%	0%

Reasons why the Healthcare Personnel would NOT try the following HARDWARE innovations-1st mention (Tablets}		Gender		State				
	Total	Male	Female	Edo	Lagos	Niger	Ogun	Plateau
Number of Respondents	4	4	0	0	0	2	0	2
It is not fast	50%	25%	0%	0%	0%	50%	0%	50%
I don't like the size	50%	100%	0%	0%	0%	50%	0%	50%

Reasons why the Healthcare Personnel would NOT try the following HARDWARE innovations-1st mention (Wearables such blood pressure monitors)		Gender		State				
	Total	Male	Female	Edo	Lagos	Niger	Ogun	Plateau
Number of Respondents	6	5	1	0	1	3	0	2
It is expensive	33%	67%	33%	0%	100%	33%	0%	67%
Not fully	33%	17%	0%	0%	0%	33%	0%	0%

dependable								
it might not be realistic in this country with our level of development	33%	17%	0%	0%	0%	0%	0%	50%

Reasons why the Healthcare Personnel would NOT try the following HARDWARE innovations-1st mention (Digital diagnostics)								
		Gender		**State**				
	Total	**Male**	**Female**	**Edo**	**Lagos**	**Niger**	**Ogun**	**Plateau**
Number of Respondents	**5**	**2**	**3**	**1**	**0**	**1**	**1**	**2**
It is expensive	60%	100%	33%	100%	0%	100%	100%	0%
Lack of awareness	20%	0%	33%	0%	0%	0%	0%	50%
No good electricity and power source issues	20%	0%	33%	0%	0%	0%	0%	50%

Reasons why the Healthcare Personnel would NOT try the following HARDWARE innovations-1st mention (Drones, i.e., in delivery of medical supplies)								
		Gender		State				
	Total	Male	Female	Edo	Lagos	Niger	Ogun	Plateau
Number of Respondents	**33**	**19**	**14**	**10**	**2**	**11**	**1**	**9**
It is expensive	24%	11%	43%	40%	0%	0%	100%	33%
Not fully dependable	3%	5%	0%	0%	0%	9%	0%	0%
it might not be realistic in this country with our level of development	9%	11%	7%	0%	50%	18%	0%	0%
Lack of awareness	39%	53%	21%	30%	0%	45%	0%	56%
I cannot trust it for now	12%	16%	7%	20%	0%	18%	0%	0%
Not easy to handle	3%	0%	7%	10%	0%	0%	0%	0%
It's done by the ministry of health and Government.	3%	0%	7%	0%	50%	0%	0%	0%
It might be too cumbersome, complicated, and dangerous	6%	5%	7%	0%	0%	9%	0%	11%

Reasons why the Healthcare Personnel would NOT try the following HARDWARE innovations-1st mention (Robotics in surgery among others)								
		Gender		State				
	Total	Male	Female	Edo	Lagos	Niger	Ogun	Plateau
Number of Respondents	**40**	**17**	**23**	**7**	**12**	**4**	**9**	**8**
It is expensive	20%	12%	26%	43%	42%	0%	0%	0%
Not fully dependable	5%	0%	9%	0%	0%	0%	22%	0%
it might not be realistic in this country with our level of development	5%	0%	9%	0%	8%	0%	0%	13%
Lack of awareness	20%	24%	17%	0%	8%	50%	22%	38%
I cannot trust it for now	8%	18%	0%	0%	17%	0%	0%	13%
It might be too cumbersome,	10%	12%	9%	0%	8%	25%	0%	25%

	Total	Male	Female	Edo	Lagos	Niger	Ogun	Plateau
complicated, and dangerous								
Human is more needful than robotics	13%	24%	4%	14%	25%	0%	0%	13%
Cause it a program and mistakes can happen	3%	0%	4%	0%	8%	0%	0%	0%
Considering the location of the service	3%	6%	0%	0%	0%	0%	0%	13%
May lead to the loss of live	8%	6%	9%	29%	0%	25%	0%	0%
It might require more technical knowledge, systems errors, and the likes	10%	0%	17%	0%	0%	0%	44%	0%
Nothing	8%	12%	4%	14%	0%	0%	22%	0%

Reasons why the Healthcare Personnel would NOT try the following HARDWARE innovations-2nd mention (Computers/Laptops)

	Total	Gender		State				
		Male	Female	Edo	Lagos	Niger	Ogun	Plateau
Number of Respondents	4	4	0	2	0	2	0	0
Data might have errors	50%	50%	0%	50%	0%	50%	0%	0%
Nothing	50%	50%	0%	50%	0%	50%	0%	0%

Reasons why the Healthcare Personnel would NOT try the following HARDWARE innovations-2nd mention (Mobile Phones)

	Total	Gender		State				Plateau
		Male	Female	Edo	Lagos	Niger	Ogun	
Number of Respondents	1	0	1	1	0	0	0	0
Many patients may not be able to read what might be sent to them	100%	0%	100%	100%	0%	0%	0%	0%

Reasons why the Healthcare Personnel would NOT try the following HARDWARE innovations-2nd mention (Tablets}

	Total	Gender		State				
		Male	Female	Edo	Lagos	Niger	Ogun	Plateau
Number of Respondents	4	2	2	1	1	1	0	1
It is expensive	25%	0%	50%	0%	0%	0%	0%	100%
It will not be easy to carry it about	25%	50%	0%	0%	0%	100%	0%	0%
It will not look professional using it	25%	0%	50%	0%	100%	0%	0%	0%
Not fully dependable	25%	50%	0%	100%	0%	0%	0%	0%

Reasons why the Healthcare Personnel would NOT try the following HARDWARE innovations-2nd mention (Wearables such blood pressure monitors)

	Total	Gender		State				
Number of Respondents		Male	Female	Edo	Lagos	Niger	Ogun	Plateau
	1	1	0	0	0	1	0	0

It might be too cumbersome, complicated, and dangerous	100%	100%	0%	0%	0%	100%	0%	0%

Reasons why the Healthcare Personnel would NOT try the following HARDWARE innovations-2nd mention (Digital diagnostics)

		Gender		State			Ogun	Plateau
	Total	Male	Female	Edo	Lagos	Niger		
Number of Respondents	**5**	**3**	**2**	**1**	**0**	**1**	**2**	**1**
It is expensive	40%	0%	100%	0%	0%	0%	100%	0%
Is very fast to work	20%	33%	0%	0%	0%	100%	0%	0%
Not fully dependable	20%	33%	0%	100%	0%	0%	0%	0%
Lack of awareness	20%	33%	0%	0%	0%	0%	0%	100%

Reasons why the Healthcare Personnel would NOT try the following HARDWARE innovations-2nd mention (Drones, i.e., in delivery of medical supplies)

		Gender		State				
	Total	**Male**	**Female**	**Edo**	**Lagos**	**Niger**	**Ogun**	**Plateau**
Number of Respondents	**27**	**13**	**14**	**4**	**3**	**6**	**6**	**8**
It is expensive	22%	8%	36%	50%	33%	0%	50%	0%
Is very fast to work	7%	15%	0%	0%	0%	33%	0%	0%
Not fully dependable	11%	15%	7%	0%	33%	17%	0%	13%
it might not be realistic in this country with our level of development	15%	23%	7%	0%	0%	17%	0%	38%
Lack of awareness	7%	8%	7%	0%	0%	17%	0%	13%
It might be too cumbersome, complicated, and dangerous	15%	8%	21%	50%	0%	17%	0%	13%
It might require more technical knowledge, systems errors, and the likes	7%	15%	0%	0%	33%	0%	0%	13%
Data might have errors	4%	0%	7%	0%	0%	0%	17%	0%
So, it does not fall into wrong hands	4%	0%	7%	0%	0%	0%	0%	13%
Nothing	7%	8%	7%	0%	0%	0%	33%	0%

Reasons why the Healthcare Personnel would NOT try the following HARDWARE innovations-2nd mention (Robotics in surgery among others)

		Gender		State				
	Total	Male	Female	Edo	Lagos	Niger	Ogun	Plateau
Number of Respondents	**36**	**19**	**17**	**8**	**1**	**12**	**3**	**12**
It is expensive	28%	21%	35%	38%	0%	0%	33%	50%
It might cause distraction	3%	0%	6%	13%	0%	0%	0%	0%
Not fully dependable	6%	11%	0%	0%	0%	17%	0%	0%
it might not be realistic in this country with our level of development	8%	11%	6%	0%	0%	17%	0%	8%
It helps in checking blood pressure and	3%	5%	0%	0%	0%	8%	0%	0%

the like							
Lack of awareness	22%	32%	12%	0%	0%	50%	0%	17%
I cannot trust it for now	14%	5%	24%	38%	0%	8%	0%	8%
It's done by the ministry of health and Government.	3%	0%	6%	0%	100%	0%	0%	0%
It might be too cumbersome, complicated, and dangerous	3%	0%	6%	0%	0%	0%	0%	8%
May lead to the loss of live	3%	5%	0%	13%	0%	0%	0%	0%
Because they facility is not equip for that	3%	5%	0%	0%	0%	0%	0%	8%
Nothing	6%	5%	6%	0%	0%	0%	67%	0%

Reasons why the Healthcare Personnel would NOT try the following HARDWARE innovations-3rd mention (Computers/Laptops)

		Gender		State				
	Total	Male	Female	Edo	Lagos	Niger	Ogun	Plateau
Number of Respondents	**3**	**1**	**2**	**1**	**0**	**1**	**0**	**1**
It will not be easy to carry it about	33%	0%	50%	0%	0%	0%	0%	100%
They are not mostly needed in health care	33%	100%	0%	0%	0%	100%	0%	0%
Nothing	33%	0%	50%	100%	0%	0%	0%	0%

Reasons why the Healthcare Personnel would NOT try the following HARDWARE innovations-3rd mention (Mobile Phones)

		Gender		State				
	Total	Male	Female	Edo	Lagos	Niger	Ogun	Plateau
Number of Respondents	4	3	1	1	1	2	0	0
It will not look professional using it	25%	0%	100%	0%	100%	0%	0%	0%
It might cause distraction	50%	33%	100%	100%	100%	0%	0%	0%
They are not needed in health care	50%	67%	0%	0%	0%	100%	0%	0%

Reasons why the Healthcare Personnel would NOT try the following HARDWARE innovations-3rd mention (Tablets}

		Gender		State				
	Total	Male	Female	Edo	Lagos	Niger	Ogun	Plateau
Number of Respondents	**4**	**2**	**2**	**2**	**0**	**0**	**0**	**2**
They are mostly needed in health care	25%	50%	0%	0%	0%	0%	0%	50%
It is not fast	25%	50%	0%	50%	0%	0%	0%	0%
it might not be realistic in this country with our level of development	25%	0%	50%	50%	0%	0%	0%	0%
No good electricity and power source issues	25%	0%	50%	0%	0%	0%	0%	50%

Reasons why the Healthcare Personnel would NOT try the following HARDWARE innovations-3rd mention (Wearables such blood pressure monitors)

		Gender		State				
	Total	Male	Female	Edo	Lagos	Niger	Ogun	Plateau
Number of Respondents	7	6	1	2	1	3	0	1
It is expensive	14%	17%	0%	0%	100%	0%	0%	0%
They are mostly needed in health care	14%	17%	0%	0%	0%	0%	0%	100%
Not fully dependable	14%	17%	0%	50%	0%	0%	0%	0%
Lack of awareness	14%	17%	0%	0%	0%	33%	0%	0%
I cannot trust it for now	14%	0%	100%	50%	0%	0%	0%	0%
Data might have errors	14%	17%	0%	0%	0%	33%	0%	0%
Nothing	14%	17%	0%	0%	0%	33%	0%	0%

Reasons why the Healthcare Personnel would NOT try the following HARDWARE innovations-3rd mention (Digital diagnostics)

		Gender		State				
	Total	Male	Female	Edo	Lagos	Niger	Ogun	Plateau
Number of Respondents	9	5	4	1	0	4	2	2
it might not be realistic in this country with our level of development	11%	0%	25%	100%	0%	0%	0%	0%
Lack of awareness	22%	20%	25%	0%	0%	25%	0%	50%
No good electricity and power source issues	11%	20%	0%	0%	0%	0%	0%	50%
It might be too cumbersome, complicated, and dangerous	11%	0%	25%	0%	0%	25%	0%	0%
Nothing	33%	40%	25%	0%	0%	25%	100%	0%

Reasons why the Healthcare Personnel would NOT try the following HARDWARE innovations-3rd mention (Drones, i.e., in delivery of medical supplies)

		Gender		State				
	Total	Male	Female	Edo	Lagos	Niger	Ogun	Plateau
Number of Respondents	7	3	4	1	1	1	0	4
It is expensive	29%	67%	0%	0%	0%	0%	0%	50%
Not fully dependable	14%	0%	25%	100%	0%	0%	0%	0%
Lack of awareness	29%	0%	50%	0%	100%	0%	0%	25%
Considering the location of the service	14%	33%	0%	0%	0%	100%	0%	0%
Nothing	14%	0%	25%	0%	0%	0%	0%	25%

Reasons why the Healthcare Personnel would NOT try the following HARDWARE innovations-3rd mention (Robotics in surgery among others)

		Gender		State				
	Total	Male	Female	Edo	Lagos	Niger	Ogun	Plateau
Number of Respondents	7	6	1	1	0	4	1	1
It is expensive	14%	0%	100%	0%	0%	0%	100%	0%
They are mostly needed in health care	14%	17%	0%	0%	0%	25%	0%	0%
Not fully dependable	14%	17%	0%	0%	0%	25%	0%	0%
Lack of awareness	14%	17%	0%	0%	0%	25%	0%	0%

Human is more needful than robotics	29%	33%	0%	100%	0%	25%	0%	0%
It might require more technical knowledge, systems errors, and the likes	14%	17%	0%	0%	0%	0%	0%	100%

ANNEX D: Reasons why the Healthcare Personnel would not try the following applications, platforms, or software innovations-1st mention (Telemedicine/telemonitoring)1st, 2nd and 3rd Mentions

Reasons why the Healthcare Personnel would NOT try the following APPLICATIONS, PLATFORMS or SOFTWARE innovations-1st mention (Telemedicine/telemonitoring)		Gender		State				
	Total	Male	Female	Edo	Lagos	Niger	Ogun	Plateau
Number of Respondents	**9**	**3**	**6**	**4**	**2**	**1**	**0**	**2**
I do not know its functions	33%	33%	33%	50%	50%	0%	0%	0%
It's too expensive to buy	22%	0%	33%	25%	50%	0%	0%	0%
These would be too technical	22%	33%	17%	25%	0%	100%	0%	0%
Nothing	33%	33%	33%	25%	0%	0%	0%	100%

Reasons why the Healthcare Personnel would NOT try the following APPLICATIONS, PLATFORMS or SOFTWARE innovations-1st mention(e-medicine/e-health)		Gender		State				
	Total	Male	Female	Edo	Lagos	Niger	Ogun	Plateau
Number of Respondents	3	3	0	1	0	2	0	0
I do not know its functions	33%	33%	0%	100%	0%	0%	0%	0%
This is the use of electrical	33%	33%	0%	0%	0%	50%	0%	0%
Nothing	33%	33%	0%	0%	0%	50%	0%	0%

Reasons why the Healthcare Personnel would NOT try the following APPLICATIONS, PLATFORMS or SOFTWARE innovations-1st mention (Mobile Phones SMS Services)		Gender		State				
	Total	Male	Female	Edo	Lagos	Niger	Ogun	Plateau
Number of Respondents	3	2	1	1	0	1	0	1
I do not know its functions	67%	50%	100%	100%	0%	0%	0%	100%
Nothing	33%	50%	0%	0%	0%	100%	0%	0%

Reasons why the Healthcare Personnel would NOT try the following APPLICATIONS, PLATFORMS or SOFTWARE innovations-1st mention (Mobile Phones Apps)		Gender		State				
	Total	Male	Female	Edo	Lagos	Niger	Ogun	Plateau
Number of Respondents	1	1	0	0	0	1	0	0
Not easy to download the application	100%	100%	0%	0%	0%	100%	0%	0%

Reasons why the Healthcare Personnel would NOT try the following APPLICATIONS, PLATFORMS or SOFTWARE innovations-1st mention (Artificial Intelligence)		Gender		State				
	Total	Male	Female	Edo	Lagos	Niger	Ogun	Plateau
Number of Respondents	13	4	9	6	2	0	2	3
I do not know its functions	15%	25%	11%	0%	0%	0%	50%	33%

It is risky and highly complicated	8%	0%	11%	0%	0%	0%	50%	0%
Unreliable	15%	0%	22%	17%	0%	0%	0%	33%
Undependable and not feasible	8%	0%	11%	17%	0%	0%	0%	0%
Unavailable and difficult to access	8%	0%	11%	0%	0%	0%	0%	33%
Requires lots of technology skills and experts to operate	38%	50%	33%	67%	50%	0%	0%	0%
Patient would not be willing to try this cos they are actually not conversant with it	8%	0%	11%	0%	50%	0%	0%	0%
Nothing	8%	25%	0%	0%	0%	0%	50%	0%

Reasons why the Healthcare Personnel would NOT try the following APPLICATIONS, PLATFORMS or SOFTWARE innovations-1st mention (Digital platforms i.e., digital health)

		Gender		State				
	Total	Male	Female	Edo	Lagos	Niger	Ogun	Plateau
Number of Respondents	2	1	1	0	0	0	0	2
Undependable and not feasible	50%	100%	0%	0%	0%	0%	0%	50%
We are not ready for this innovation as a country	50%	0%	100%	0%	0%	0%	0%	50%

Reasons why the Healthcare Personnel would NOT try the following APPLICATIONS, PLATFORMS or SOFTWARE innovations-1st mention (Online/Internet)

		Gender		State				
	Total	Male	Female	Edo	Lagos	Niger	Ogun	Plateau
Number of Respondents	2	1	1	0	2	0	0	0
There might not be much acceptance from people or trust	100%	100%	100%	0%	100%	0%	0%	0%

Reasons why the Healthcare Personnel would NOT try the following APPLICATIONS, PLATFORMS or SOFTWARE innovations-1st mention (Health Care Data Bases)

		Gender		State				
	Total	Male	Female	Edo	Lagos	Niger	Ogun	Plateau
Number of Respondents	3	3	0	0	0	3	0	0
To keep data record of everything	67%	67%	0%	0%	0%	67%	0%	0%
State government won't adopt to that	33%	33%	0%	0%	0%	33%	0%	0%

Reasons why the Healthcare Personnel would NOT try the following APPLICATIONS, PLATFORMS or SOFTWARE innovations-1st mention (Specialized Software)

		Gender		State				
	Total	Male	Female	Edo	Lagos	Niger	Ogun	Plateau
Number of Respondents	4	2	2	2	1	1	0	0
I do not know its functions	25%	0%	50%	50%	0%	0%	0%	0%
Requires lots of technology skills and experts to operate	25%	50%	0%	0%	0%	100%	0%	0%

There might not be much acceptance from people or trust	25%	0%	50%	0%	100%	0%	0%	0%
It does not help in the patient medical history confidentiality	25%	50%	0%	50%	0%	0%	0%	0%

Reasons why the Healthcare Personnel would NOT try the following APPLICATIONS, PLATFORMS or SOFTWARE innovations-1st mention (Big Data)

	Total	Gender		State				
		Male	Female	Edo	Lagos	Niger	Ogun	Plateau
Number of Respondents	6	3	3	1	1	1	2	1
I do not know its functions	17%	33%	0%	0%	0%	100%	0%	0%
Lack of awareness	50%	33%	67%	100%	0%	0%	100%	0%
Requires lots of technology skills and experts to operate	17%	33%	0%	0%	100%	0%	0%	0%
Nothing	17%	0%	33%	0%	0%	0%	0%	100%

Reasons why the Healthcare Personnel would NOT try the following APPLICATIONS, PLATFORMS or SOFTWARE innovations-1st mention (Machine Learning)

	Total	Gender		State				
		Male	Female	Edo	Lagos	Niger	Ogun	Plateau
Number of Respondents	1	1	0	0	1	0	0	0
It's too expensive to buy	100%	100%	0%	0%	100%	0%	0%	0%

Reasons why the Healthcare Personnel would NOT try the following APPLICATIONS, PLATFORMS or SOFTWARE innovations-1st mention (e-training for medical personnel)

	Total	Gender		State				
		Male	Female	Edo	Lagos	Niger	Ogun	Plateau
Number of Respondents	1	1	0	0	0	0	0	1
We are not ready for this innovation as a country	100%	100%	0%	0%	0%	0%	0%	100%

Reasons why the Healthcare Personnel would NOT try the following APPLICATIONS, PLATFORMS or SOFTWARE innovations-1st mention (Blockchain)

	Total	Gender		State				
		Male	Female	Edo	Lagos	Niger	Ogun	Plateau
Number of Respondents	14	5	9	3	1	1	5	4
I do not know its functions	14%	20%	11%	67%	0%	0%	0%	0%
It's too expensive to buy	14%	20%	11%	0%	0%	0%	0%	50%
Lack of awareness	7%	20%	0%	0%	0%	0%	0%	25%
Requires lots of technology skills and experts to operate	7%	0%	11%	0%	0%	0%	20%	0%
We are not ready for this innovation as a country	14%	0%	22%	33%	100%	0%	0%	0%
There might not be much acceptance from people or trust	7%	0%	11%	0%	0%	100%	0%	0%
Nothing	36%	40%	33%	0%	0%	0%	80%	25%

Reasons why the Healthcare Personnel would NOT try the following APPLICATIONS, PLATFORMS or SOFTWARE innovations-1st mention (Virtual reality (metaverse))		Gender		State				
	Total	Male	Female	Edo	Lagos	Niger	Ogun	Plateau
Number of Respondents	9	7	2	2	6	0	0	1
I do not know its functions	22%	14%	50%	50%	17%	0%	0%	0%
It's too expensive to buy	22%	14%	50%	50%	17%	0%	0%	0%
Requires lots of technology skills and experts to operate	11%	14%	0%	0%	17%	0%	0%	0%
Is not physical and does not look real	33%	43%	0%	0%	50%	0%	0%	0%
Nothing	11%	14%	0%	0%	0%	0%	0%	100%

Reasons why the Healthcare Personnel would NOT try the following APPLICATIONS, PLATFORMS or SOFTWARE innovations-2nd mention (Telemedicine/telemonitoring)		Gender		State				
	Total	Male	Female	Edo	Lagos	Niger	Ogun	Plateau
Number of Respondents	5	5	0	0	0	4	0	1
I do not know its functions	40%	40%	0%	0%	0%	50%	0%	0%
Lack of awareness	40%	40%	0%	0%	0%	50%	0%	0%
Nothing	20%	20%	0%	0%	0%	0%	0%	100%

Reasons why the Healthcare Personnel would NOT try the following APPLICATIONS, PLATFORMS or SOFTWARE innovations-**2nd mention (e-medicine/e-health)**		Gender		State				
	Total	Male	Female	Edo	Lagos	Niger	Ogun	Plateau
Number of Respondents	9	3	6	5	2	2	0	0
I do not know its functions	22%	0%	33%	40%	0%	0%	0%	0%
It is mostly good and necessary to try	11%	33%	0%	0%	0%	50%	0%	0%
Undependable and not feasible	11%	0%	17%	0%	0%	50%	0%	0%
Lack of awareness	44%	33%	50%	60%	50%	0%	0%	0%
There might not be much acceptance from people or trust	11%	33%	0%	0%	50%	0%	0%	0%

Reasons why the Healthcare Personnel would NOT try the following APPLICATIONS, PLATFORMS or SOFTWARE innovations-2nd mention (Mobile Phones SMS Services)		Gender		State				
	Total	Male	Female	Edo	Lagos	Niger	Ogun	Plateau
Number of Respondents	2	1	1	1	0	1	0	0
Some people do not bother to check messages	50%	0%	100%	100%	0%	0%	0%	0%
For notification on next appointments	50%	100%	0%	0%	0%	100%	0%	0%

Reasons why the Healthcare Personnel would NOT try the following APPLICATIONS, PLATFORMS or SOFTWARE innovations-2nd mention (Artificial Intelligence)					
	Total	Gender		State	

		Male	Female	Edo	Lagos	Niger	Ogun	Plateau
Number of Respondents	11	10	1	2	1	3	0	5
I do not know its functions	36%	40%	0%	0%	0%	100%	0%	20%
It's too expensive to buy	27%	20%	100%	50%	0%	0%	0%	40%
Lack of awareness	9%	10%	0%	0%	0%	0%	0%	20%
Patient would not be willing to try this cos they are actually not conversant with it	9%	10%	0%	0%	100%	0%	0%	0%
There might not be much acceptance from people or trust	9%	10%	0%	50%	0%	0%	0%	0%
Is somehow against my religion	9%	10%	0%	0%	0%	0%	0%	20%

Reasons why the Healthcare Personnel would NOT try the following APPLICATIONS, PLATFORMS or SOFTWARE innovations-2nd mention (Digital platforms i.e., digital health)								
		Gender		State				
	Total	Male	Female	Edo	Lagos	Niger	Ogun	Plateau
Number of Respondents	4	1	3	1	0	1	0	2
It's too expensive to buy	25%	0%	33%	100%	0%	0%	0%	0%
There might not be much acceptance from people or trust	50%	0%	67%	0%	0%	0%	0%	100%
It does not help in the patient medical history confidentiality	25%	100%	0%	0%	0%	100%	0%	0%

Reasons why the Healthcare Personnel would NOT try the following APPLICATIONS, PLATFORMS or SOFTWARE innovations-2nd mention (Online/Internet)								
		Gender		State				
	Total	Male	Female	Edo	Lagos	Niger	Ogun	Plateau
Number of Respondents	3	3	0	0	0	2	1	0
It will take time to learn it	25%	25%	0%	0%	0%	67%	0%	0%
Nothing	75%	75%	0%	0%	0%	0%	100%	0%

Reasons why the Healthcare Personnel would NOT try the following APPLICATIONS, PLATFORMS or SOFTWARE innovations-2nd mention (Specialized Software)								
		Gender		State				
	Total	Male	Female	Edo	Lagos	Niger	Ogun	Plateau
Number of Respondents	3	2	1	0	1	0	0	2
Lack of awareness	33%	50%	0%	0%	0%	0%	0%	50%
Network failure and software malfunction	33%	50%	0%	0%	100%	0%	0%	0%
Nothing	33%	0%	100%	0%	0%	0%	0%	50%
Reasons why the Healthcare Personnel would NOT try the following APPLICATIONS, PLATFORMS or SOFTWARE innovations-2nd mention (Big Data)								
		Gender		State				
	Total	Male	Female	Edo	Lagos	Niger	Ogun	Plateau
Number of Respondents	5	3	2	1	0	3	0	1
It is mostly good and necessary to try but expensive	40%	67%	0%	0%	0%	67%	0%	0%
Lack of awareness	60%	33%	100%	100%	0%	33%	0%	100%

Reasons why the Healthcare Personnel would NOT try the following APPLICATIONS, PLATFORMS or SOFTWARE innovations-2nd mention (Machine Learning)

	Total	Gender		State				
		Male	Female	Edo	Lagos	Niger	Ogun	Plateau
Number of Respondents	5	1	4	0	2	1	2	0
It's too expensive to buy	20%	0%	25%	0%	50%	0%	0%	0%
These would be too technical	20%	0%	25%	0%	0%	0%	50%	0%
Undependable and not feasible	20%	100%	0%	0%	0%	100%	0%	0%
It will take time to learn it	40%	0%	50%	0%	50%	0%	50%	0%

Reasons why the Healthcare Personnel would NOT try the following APPLICATIONS, PLATFORMS or SOFTWARE innovations-2nd mention(e-training for medical personnel)

	Total	Gender		State				
		Male	Female	Edo	Lagos	Niger	Ogun	Plateau
Number of Respondents	3		3	1	1	0	0	1
We are not ready for this innovation as a country	33%		33%	100%	0%	0%	0%	0%
Nothing	67%		67%	0%	0%	0%	0%	33%

Reasons why the Healthcare Personnel would NOT try the following APPLICATIONS, PLATFORMS or SOFTWARE innovations-2nd mention (Blockchain)

	Total	Gender		State				
		Male	Female	Edo	Lagos	Niger	Ogun	Plateau
Number of Respondents	15	4	11	4	5	1	3	2
I do not know its functions	60%	25%	73%	25%	100%	0%	100%	0%
Undependable and not feasible	7%	25%	0%	0%	0%	100%	0%	0%
Lack of awareness	20%	50%	9%	25%	0%	0%	0%	100%
Requires lots of technology skills and experts to operate	7%	0%	9%	25%	0%	0%	0%	0%
We are not ready for this innovation as a country	7%	0%	9%	25%	0%	0%	0%	0%

Reasons why the Healthcare Personnel would NOT try the following APPLICATIONS, PLATFORMS or SOFTWARE innovations-2nd mention (Virtual reality (metaverse))

	Total	Gender		State				
		Male	Female	Edo	Lagos	Niger	Ogun	Plateau
Number of Respondents	11	4	7	2	3	1	3	2
I do not know its functions	18%	25%	14%	50%	33%	0%	0%	0%
Lack of awareness	9%	0%	14%	0%	0%	0%	0%	50%
Requires lots of technology skills and experts to operate	9%	0%	14%	50%	0%	0%	0%	0%
We are not ready for this innovation as a country	18%	25%	14%	0%	67%	0%	0%	0%
There might not be much acceptance from people or trust	9%	0%	14%	0%	0%	100%	0%	0%
It is not good for our primary health care	9%	0%	14%	0%	0%	0%	33%	0%
Nothing	27%	50%	14%	0%	0%	0%	67%	50%

Reasons why the Healthcare Personnel would NOT try the following APPLICATIONS, PLATFORMS or SOFTWARE innovations-3rd mention (Telemedicine/telemonitoring)

		Gender		State				
	Total	**Male**	**Female**	**Edo**	**Lagos**	**Niger**	**Ogun**	**Plateau**
Number of Respondents	**6**	**4**	**2**	**2**	**0**	**3**	**0**	**1**
I do not know its functions	17%	25%	0%	0%	0%	33%	0%	0%
It's too expensive to buy	17%	25%	0%	0%	0%	0%	0%	100%
Undependable and not feasible	17%	25%	0%	0%	0%	33%	0%	0%
Lack of awareness	17%	25%	0%	0%	0%	33%	0%	0%
We are not ready for this innovation as a country	17%	0%	50%	50%	0%	0%	0%	0%
There might not be much acceptance from people or trust	17%	0%	50%	50%	0%	0%	0%	0%

Reasons why the Healthcare Personnel would NOT try the following APPLICATIONS, PLATFORMS or SOFTWARE innovations-3rd mention (e-medicine/e-health)

		Gender		State				
	Total	**Male**	**Female**	**Edo**	**Lagos**	**Niger**	**Ogun**	**Plateau**
Number of Respondents	**6**	**6**	**0**	**0**	**0**	**5**	**0**	**1**
I do not know its functions	50%	50%	0%	0%	0%	60%	0%	0%
It is mostly good and necessary to try	17%	17%	0%	0%	0%	0%	0%	100%
Lack of awareness	17%	17%	0%	0%	0%	20%	0%	0%
We are not ready for this innovation as a country	17%	17%	0%	0%	0%	20%	0%	0%

Reasons why the Healthcare Personnel would NOT try the following APPLICATIONS, PLATFORMS or SOFTWARE innovations-3rd mention (Mobile Phones SMS Services)

		Gender		State				
	Total	**Male**	**Female**	**Edo**	**Lagos**	**Niger**	**Ogun**	**Plateau**
Number of Respondents	**2**	**1**	**1**	**0**	**1**	**1**	**0**	**0**
Some people do not bother to check messages	50%	100%	0%	0%	0%	100%	0%	0%
Unprofessional to use at work	50%	0%	100%	0%	100%	0%	0%	0%

Reasons why the Healthcare Personnel would NOT try the following APPLICATIONS, PLATFORMS or SOFTWARE innovations-3rd mention (Mobile Phones Apps)

		Gender		State				
	Total	**Male**	**Female**	**Edo**	**Lagos**	**Niger**	**Ogun**	**Plateau**
Number of Respondents	**1**	**0**	**1**	**0**	**0**	**0**	**0**	**1**
Nothing	100%	0%	100%	0%	0%	0%	0%	100%

Reasons why the Healthcare Personnel would NOT try the following APPLICATIONS, PLATFORMS or SOFTWARE innovations-3rd mention (Artificial Intelligence)

		Gender		State				
	Total	**Male**	**Female**	**Edo**	**Lagos**	**Niger**	**Ogun**	**Plateau**
Number of Respondents	**7**	**3**	**4**	**1**	**1**	**2**	**2**	**1**
Lack of awareness	29%	33%	25%	0%	100%	0%	0%	100%
We are not ready for this innovation as a country	14%	0%	25%	100%	0%	0%	0%	0%
There might not be much acceptance from people or trust	14%	0%	25%	0%	0%	50%	0%	0%
Nothing	43%	67%	25%	0%	0%	50%	100%	0%

Reasons why the Healthcare Personnel would NOT try the following APPLICATIONS, PLATFORMS or SOFTWARE innovations-3rd mention (Specialized Software)

| | Total | Gender | | State | | | | |
		Male	Female	Edo	Lagos	Niger	Ogun	Plateau
Number of Respondents	**3**	**3**	**0**	**1**	**0**	**1**	**0**	**1**
Unreliable	33%	33%	0%	0%	0%	100%	0%	0%
Lack of awareness	67%	67%	0%	100%	0%	0%	0%	100%

Reasons why the Healthcare Personnel would NOT try the following APPLICATIONS, PLATFORMS or SOFTWARE innovations-3rd mention (Big Data)

| | Total | Gender | | State | | | | |
		Male	Female	Edo	Lagos	Niger	Ogun	Plateau
Number of Respondents	**8**	**4**	**4**	**0**	**1**	**2**	**1**	**4**
I do not know its functions	25%	0%	50%	0%	0%	50%	0%	25%
It is risky and highly complicated	13%	25%	0%	0%	0%	50%	0%	0%
Undependable and not feasible	13%	25%	0%	0%	0%	50%	0%	0%
Lack of awareness	13%	25%	0%	0%	0%	0%	0%	25%
Unavailable and difficult to access	13%	25%	0%	0%	100%	0%	0%	0%
Requires lots of technology skills and experts to operate	13%	0%	25%	0%	0%	0%	100%	0%
Nothing	25%	25%	25%	0%	0%	0%	0%	50%

Reasons why the Healthcare Personnel would NOT try the following APPLICATIONS, PLATFORMS or SOFTWARE innovations-3rd mention (Machine Learning)

| | Total | Gender | | State | | | | |
		Male	Female	Edo	Lagos	Niger	Ogun	Plateau
Number of Respondents	**6**	**3**	**3**	**3**	**3**	**0**	**0**	**0**
It's too expensive to buy	17%	33%	0%	33%	0%	0%	0%	0%
It is risky and highly complicated	17%	33%	0%	0%	33%	0%	0%	0%
Undependable and not feasible	17%	0%	33%	33%	0%	0%	0%	0%
Requires lots of technology skills and experts to operate	17%	33%	0%	33%	0%	0%	0%	0%
It is not good for our primary health care	17%	33%	0%	33%	0%	0%	0%	0%
Will replace human beings	17%	0%	33%	0%	33%	0%	0%	0%
Better diagnosis using ml enable tools to analyse medical reports and images	17%	0%	33%	0%	33%	0%	0%	0%

Reasons why the Healthcare Personnel would NOT try the following APPLICATIONS, PLATFORMS or SOFTWARE innovations-3rd mention (e-training for medical personnel)

| | Total | Gender | | State | | | | |
		Male	Female	Edo	Lagos	Niger	Ogun	Plateau
Number of Respondents	**1**	**0**	**1**	**0**	**0**	**0**	**0**	**1**
Unavailable and difficult to access	100%	0%	100%	0%	0%	0%	0%	100%

Reasons why the Healthcare Personnel would NOT try the following APPLICATIONS, PLATFORMS or SOFTWARE innovations-3rd mention (Blockchain)

| | Total | Gender | | State | | | | |
		Male	Female	Edo	Lagos	Niger	Ogun	Plateau

Number of Respondents	9	6	3	3	2	1	1	2
I do not know its functions	11%	0%	33%	0%	50%	0%	0%	0%
Undependable and not feasible	11%	17%	0%	0%	50%	0%	0%	0%
Lack of awareness	44%	50%	33%	67%	0%	100%	0%	50%
Requires lots of technology skills and experts to operate	11%	17%	0%	33%	0%	0%	0%	0%
We are not ready for this innovation as a country	22%	17%	33%	0%	0%	0%	100%	50%

Reasons why the Healthcare Personnel would NOT try the following APPLICATIONS, PLATFORMS or SOFTWARE innovations-3rd mention (Virtual reality (metaverse))								
		Gender		State				
	Total	Male	Female	Edo	Lagos	Niger	Ogun	Plateau
Number of Respondents	**13**	**4**	**9**	**7**	**2**	**0**	**1**	**3**
I do not know its functions	23%	25%	22%	14%	100%	0%	0%	0%
It's too expensive to buy	8%	25%	0%	0%	0%	0%	0%	33%
These would be too technical	8%	0%	11%	14%	0%	0%	0%	0%
Undependable and not feasible	8%	0%	11%	14%	0%	0%	0%	0%
Lack of awareness	23%	50%	11%	29%	0%	0%	0%	33%
Requires lots of technology skills and experts to operate	8%	0%	11%	0%	0%	0%	100%	0%
There might not be much acceptance from people or trust	8%	0%	11%	14%	0%	0%	0%	0%
It will take time to learn it	8%	0%	11%	14%	0%	0%	0%	0%
Nothing	8%	0%	11%	0%	0%	0%	0%	33%

ANNEX E: Online Survey

ANNEX E: Online Survey

02/06/2023, 13:50   Innovation Opportunities and Barriers in the Nigeria Primary Health Care Sector

Could you tell us what is the ownership of your place of work?

○ Christian owned

○ Other

○ Muslim owned

Which is your role in the primary health care facility you work for?

○ Doctor

○ Nurse - Midwife

○ Pharmacist

○ Community Health Worker

○ Laboratory

○ IT/Procurement/Finance

○ Other

Could you tell us how many years of experience in the primary health sector do you have?

○ Less than 3 years

○ 3-5 years

○ 6-10 years

○ 11-15 years

○ 16-20 years

○ 21-25 years

○ 26-30 years

○ More than 30 years

Could you tell us how many patients you serve in a typical day?

○ 1-20 patients

○ 21-40 patients

○ 41-50 patients

○ More than 50 patients

Have you visited a primary health care in the last six months?

○ YES

○ NO

Can you tell us in which LGA is the primary health care you visited in the last six months

_____

What are the advantages of the Nigerian Primary Health Care System?

- [ ] It offers pre- and post-natal services
- [ ] It makes medical care available
- [ ] It offers immunisation services
- [ ] It's accessible
- [ ] It provides medicines
- [ ] It's close to home
- [ ] It's open 24 hours
- [ ] None of the above
- [ ] It's good for the vulnerable members of the society such as the old, and young
- [ ] It educates the public on health matters
- [ ] It's free

On the advantages of the Nigerian Primary Health Care System you have chose before, please rank for the most important, 2nd important and 3rd Important

_____

1st choice

- ( ) It's free
- ( ) It makes medical care available
- ( ) It's accessible
- ( ) It's close to home
- ( ) It's open 24 hours
- ( ) It's good for the vulnerable members of the society such as the old, and young
- ( ) It offers pre- and post-natal services
- ( ) It provides medicines
- ( ) It educates the public on health matters
- ( ) It offers immunisation services
- ( ) Item

2nd choice

- ( ) It's free
- ( ) It makes medical care available
- ( ) It's accessible
- ( ) It's close to home
- ( ) It's open 24 hours
- ( ) It's good for the vulnerable members of the society such as the old, and young
- ( ) It offers pre- and post-natal services
- ( ) It provides medicines
- ( ) It educates the public on health matters
- ( ) It offers immunisation services
- ( ) Item

3rd choice

- ( ) It's free
- ( ) It makes medical care available
- ( ) It's accessible
- ( ) It's close to home
- ( ) It's open 24 hours
- ( ) It's good for the vulnerable members of the society such as the old, and young
- ( ) It offers pre- and post-natal services
- ( ) It provides medicines
- ( ) It educates the public on health matters
- ( ) It offers immunisation services
- ( ) Item

What are the challenges facing the Nigerian Primary Health Care System?

☐ Lack of basic facilities such as laboratories

☐ Not the best for emergency services

☐ Few Services

☐ Lack of well-trained personnel

☐ Lack of internet

☐ Poor Service delivery

☐ Lack of Finance

☐ Lack of Electricity/blackouts

☐ Lack of Personnel

☐ Lack of bed for admission

. On the challenges facing the Nigerian Primary Health Care System you have mentioned, please rank for the Most Pressing, 2nd Pressing and 3rd Pressing?

1st choice

○ Lack of Personnel   ○ Lack of Finance   ○ Lack of bed for admission

○ Not the best for emergency services   ○ Lack of Electricity/blackouts

○ Poor Service delivery   ○ Lack of internet

○ Lack of basic facilities such as laboratories   ○ Lack of well-trained personnel

○ Few Services

2nd choice

○ Lack of Personnel   ○ Lack of Finance   ○ Lack of bed for admission

○ Not the best for emergency services   ○ Lack of Electricity/blackouts

○ Poor Service delivery   ○ Lack of internet

○ Lack of basic facilities such as laboratories   ○ Lack of well-trained personnel

○ Few Services

3rd choice

○ Lack of Personnel   ○ Lack of Finance   ○ Lack of bed for admission

○ Not the best for emergency services   ○ Lack of Electricity/blackouts

○ Poor Service delivery   ○ Lack of internet

○ Lack of basic facilities such as laboratories   ○ Lack of well-trained personnel

○ Few Services

Based on the challenges facing the Nigerian Primary Health Care System you have mentioned, what do you think need to be done to manage these challenges?

Can you tell what comes into mind when you hear technological/ innovation in the Nigerian Primary Health Care System?

- [ ] e-medicine/e-health
- [ ] Machine Learning
- [ ] Digital platforms i.e., digital health
- [ ] Digital diagnostic
- [ ] Computers/Laptops
- [ ] e-Learning for health care providers
- [ ] Health Care Data Bases
- [ ] Mobile Phones SMS Services
- [ ] Wearable medical devices
- [ ] Telemedicine/telemonitoring
- [ ] Patients management solutions
- [ ] Drones
- [ ] Blockchain
- [ ] Mobile Phone Apps
- [ ] Remote patient monitoring
- [ ] Virtual reality (metaverse)
- [ ] Health Care Data Bases
- [ ] Artificial Intelligence

Are you aware of any use Innovation/Technology/ICT/Digital/Online/Internet in Nigeria Health Sector, either PHC, General Hospitals, Federal Level?

- ( ) YES
- ( ) NO

Thinking of the three most pressing challenges facing the Nigerian Primary Health Care Systems, and the innovations we had talked about, which are the best to solve the three most pressing challenges?

Mobile Phone Apps	Wearable medical devices	e-Learning for health care providers	
Virtual reality (metaverse)	Remote patient monitoring	e-medicine/e-health	Mobile Phones SMS Services
Computers/Laptops	Health Care Data Bases	Blockchain	Artificial Intelligence
Telemedicine/telemonitoring	Digital diagnostic	Patients management solutions	Drones

ANNEX F: Validation Workshop Interactive Whiteboard