**Assessing the Feasibility and Sustainability of a 100% Drug Prescription-Fill Policy at the University of Benin Teaching Hospital, Nigeria: Implications for National Health and Drug Policies**

**ABSTRACT:**

**Aims:** To determine the feasibility and sustainability of the 100% drug prescription-fill policy goals and compare its achievements with the alternate policy in fulfilling the national Health policies.

**Study design**: The study was limited to staff who are five years and above in the Hospital, and also patients and clients who have attended their clinics for four weeks and above**.**

**Place and Duration of** **Study:** This research was carried out at the University of Benin Teaching Hospital, Benin City, Nigeria between January 2014 and December 2022 with ethical approval of the Health Research Ethics Committee of the Hospital, vide protocol Number: ADM/E 22/A/Vol.VII/1483011857.

**Methodology:** Data for five years and four years respectively for new and old policies were obtained from staff, patients & clients (through structured written questionnaires). **The questionnaires were filled and scored out of free will by the respondents on a scale of 0-5. The questionnaires sought to ascertain how much importance they assign to each policy goals factor with respect to feasibility and sustainability. The frequency of scores for each was calculated and this was multiplied by the respective scoring factor to obtain the feasibility powers. The data for dispensing panels, staff strength and salaries were obtained from the Hospital records at the Pharmacy and Accounts departments respectively. The policy goals factors were represented by: A= Adequate & ethical provision of public goods/services; B= Reducing/resolving externalities; C= Minimizing monopolies of drug supply by market forces; D= Minimizing information asymmetry to patients by market forces; E= Ensuring proper management of available resources; F= More equitable distribution of drugs/ services to patients. Results**: The two-way ANOVA of the Graph Prism 6 was used in the analysis of variance, **and it shows that there are significant differences in the feasibility powers among the various policy goals factors (column factors) at *α* = .05, and total variation of 14%. On the roll, there is a significant difference among the treatment factors at *α* = .05, with a variation of 68%. The dispensing panels and staff strength, staff remuneration and work-out-put efficiency were analyzed using the unpaired t-test (parametric). It shows that there is a significant difference between the two policies in terms of the number of : prescriptions treated, drug items prescribed, drug items dispensed, the frequency of 'Not-Available' drugs, percentage of 'Not-Available' drugs to patients, drugs-availability and accessibility, staff- strength, staff salaries and work-out-put efficiency, at P = .05 with respective variations of 85%, 81%, 82%,i 64%, 70%, 83%, 68%, 80%, and 75%. The Null hypothesis was rejected in each scenario.. There is no significant difference between the two policies with respect to number of: Not-funded drugs by patients and percentage of funding-ability by patients at P= .05. Conclusion: In the new policy, more prescriptions were treated, more drug items were prescribed and dispensed to the patients, and these culminated in increase in internally generated revenue for the Hospital. There was a significant reduction in the frequency of occurrences of "Not-Available drugs", "Not-funded drugs" by patients, and the percentage of "Not-Available drugs". The new policy further shows a significant improvement in the "Funding-Ability" of drugs by patients, "drug-Availability” and it's percentage thereof, and work-out-put efficiency by the staff. These evaluation indicators indicate a significantly enhanced quantity and quality of care to the patients and clients through implementation of the 100% drug prescription-fill policy at University of Benin Teaching Hospital. There were significant differences between the old and new policies regarding feasibility and sustainability powers, in favour of the new policy. The new policy, therefore reasonably satisfies the stated goals & objectives of National Health & Drug Policies better than the older alternative policy.**

***Key words****: Goals, feasibility, sustainability, assessing, prescriptions-fill, policy, Health, Development, implications, National.*

1. **INTRODUCTION**

Public Policy is a set of interrelated decisions taken by a political actor or group of actors concerning the selection of goals and the means of achieving them within a specified situation where those decisions should, in principle, be within the power of those actors to achieve1. Public policy is also defined as what the government chooses to do or not to do2,3,4. The feasibility and sustainability of the policy-goals are keynotes to the success of any public policy framework. No matter how important and valuable a policy goal may seem to the policy brokers, it is expedient that it should be scientifically evaluated for feasibility & sustainability by the stakeholders or actors, employing the services of public policy analysts to forestall policy decision failure. Many public policies failures could be attributable to unachievable goals formulated, resulting from poor goals feasibility and sustainability studies and inadequate stakeholders and public participation in goals formulation. A hundred percent (100%) drug prescription­-fill policy at University of Benin Teaching Hospital was enacted by the Hospital Management in the year 2018, as a subrogate for the older alternative prescription­-fill policy and has since been operational. Adequate provisions of safe, affordable, quality, and efficacious drugs for the treatment and/or management of various diseases and social conditions is imperative to effective, efficient and sustainable healthcare delivery. There is the obligation to adequately, safely, qualitatively, ethically, and timely satisfy the patients' or clients' drug needs at a cost-effective rate. To this effect, the Hospital Pharmacy and the Management are under quality service demand impetus to procure, dispense, and administer (as the case may demand) the desired quality, safe, affordable, and efficacious drugs to the needy patients & clients and also recover the cost, for the sake of continuity. The alternative policy allows patients’ & clients' free will to outsource some or all of the prescribed drugs (if so desired) by the Hospital healthcare personnel.

The Hospital has a bed occupancy of about 660 and nothing short of seventeen Pharmacy Units rationally and strategically located at various vantage positions for the patients’ & clients’ timely and ease of access. Quality and efficacy of drugs intertwined with timely/speedy access to them are non-negotiable factors in the quality of care, resuscitation, revival, healing, and alleviation of pains and sufferings of the sick. Sourcing of drugs by the patients & clients from the Hospital Pharmacies could be less time-consuming due to proximity advantage, and this could reduce the potentials for death occurrences occasioned by delay in drug delivery to the patients and/or clients, especially those who are critically ill and/or in emergency or urgency situations. Death occurrences could also occur if the needed drugs are not available and/or not affordable in the Hospital, and therefore, such drugs have to be sourced outside the Hospital Pharmacies at the risk of the patients or caregivers crossing the always- busy Benin-Lagos express road.

The Hospital runs a Drug Revolving Fund (DRF) Policy Program, an offshoot of the Federal Government of Nigeria’s5. “Essential Medicines Program” initiated in 1987 at Bamako but came into effect in Nigeria in the year 1999. Essential medicines are those drugs that satisfy the healthcare needs of the majority of the population6 . They should be available at all times in adequate amounts, quality, efficacy, safety, and appropriate dosage forms. The policy Program document stipulates (among others) the following objectives: The need to generate funds for drug procurement from the 'seed' money given to each Hospital Management by the Federal Government of Nigeria as part of its objective statements. The Hospital Management is consequently mandated to buy quality, safe, and efficacious drugs in bulk through the Hospital's Tender Board or Committee from reputable manufacturers and big wholesalers and sell the drugs to the Hospital patients & clients at reasonably affordable or at cost-effective rates, with marginal profitability. The DRF policy Program further directs that the Hospital Management should re-plow (reinvest) both the capital and the profit into procurement of more of such drugs (qualified above) for the use of the Hospital patients & clients, make more profit, and continue same cycle to sustain the tempo of the DRF program. One sure means of attaining this is by regular and all-time patronage of the Hospital Pharmacies by the patients & clients that visit the Hospital for one service or the other. There is no room for any avoidable loss of both cash and drugs, as that will jeopardize the DRF Policy Program during the cycle. In addendum, frequent purchases of drugs by the Hospital patients & clients from the Hospital Pharmacies will preclude the expiration of the Hospital drugs (which the DRF Policy Program abhors). The 100% drug prescription-fill policy is regarded as the new policy in this research, while the old policy refers to the alternative policy where the patients choose between where to fill their prescriptions. It had existed for decades before the advent of the new policy in 2018. The new policy was formulated based on a top-down approach. This would enjoy more collaboration and coordination from the start of policy implementation to unite the priorities of the different domain policy enforcers together and deliver more coherent solutions but may be constrained by the time taken to get consensus around a common requirement vision and hard- to- reach quick consensus on strategies among top officials7 .

Policy goals’ feasibility and sustainability are among the most important factors for consideration in any policy analysis and recommendation for implementation. The most common feasibility in the policy planning matrix for policy action are political, economic & financial, administrative, technical, and socio-cultural. The feasibility of these policy goals were assessed based on effectiveness and adequacy8 . Policies are rules that define the objectives of the operation of a specific Organization; goals define the intentions9. “Policies are a mechanism for controlling the behaviour of an organization by governing the behaviour of people who work within that organization. There is a reason or reasons why policies exist. This could be called the underpinning reason. A policy is not formulated unless it is thought to be necessary or to have a benefit, and that policy exists for a purpose and this may be often expressed in the form of an ‘underpinning principle’. Policies exist to ensure, in a given situation, that people will behave in a way that is predictable, advisable, and in the best interests of the organization and the person. Following on from the Underpinning Principle, a policy will also have ‘goals.’ These goals describe the range of desired outcomes or what is to be achieved by implementing the policy”10. This creates order in the organization, which, in turn, helps the organization to move from the past to the future state, which would be to develop the economy, to sustain improvements in the social system or to increase the capacity of the organization11.

Whenever the desirability to formulate public policies arises, it is expedient to commence from goal formulation. Goals formulation is one of the key elements in decision-making, and it is the initial approach to converting invisible values into tangible reality. Before a decision can be made, one must have goals and objectives which they seek to achieve. These are derived from the Organization and may include cost minimization or profit maximization, revenue minimization, and employment creation12. The purpose of having well-defined goals for any public policy is to determine the scope and boundaries the policy alternative seeks to address, as well as to create awareness in the hearts of the stakeholders (actors) and the public of what the policy seeks to achieve. Any well-articulated and formulated policy goals would attract the cooperation of the actors and the public and also rejuvenate their energies to support the policy alternative. Policy failure is predicated upon certain qualities of the formulated policy goals, such as unclear or ambiguous goals, poorly formulated goals, undefined goals or complete absence of goals, unattainable or infeasible goals, unsustainable goals, and goals that conflict with the ideologies, values, norms, interests, and desires of a majority of the actors and target populace. It is, therefore, imperative to objectively analyze or evaluate the policy formulation goals by conducting goals feasibility and sustainability testing and testing all the parameters above. A determination of the funding capacity of some of the itemized policy goals by the organization and what benefits are derivable from such huge capital-demanding goals to the organization and the workers must be done before policy recommendation and implementation. A conducted survey report on stakeholders' acceptability of all or some of the policy goals is also necessary, as to what suitable alternative goals are feasible and sustainable. The analysis of these and much more needs to be conducted, and the necessary changes must be made for the policy goals to gain wide acceptability.

The Nigerian National Strategic Health Development Plan-2 (NSHDP-2) has five strategic pillars, and the strategic pillars 3 and 5, specific to this research work, have the following stated goals:

* “Essential Package of Health Care Services (EPHS)
* To ensure that quality medicines, vaccines, and other health commodities and technologies are available, affordable, and accessible to all Nigerians.
* To utilize research to inform policy and programming for improved performance of our health sector and better health outcomes, and also contribute to global health production.
* To ensure all Nigerians have access to health services without any financial barriers or impediments at the point of accessing care”13.

“More often than not, producers (market force) may make decisions not in the interest of the society, and therefore, the Government should intervene to safeguard the public interests. This constitutes the basic argument and rationale for regulatory policies by Government in any country and organization. Hence, there is a need for collective decisions to correct these inefficiencies by the Government of a country”14. This is a sure way to grant improved social and economic benefits to the patients & clients as well as the Hospital and its community at large. The desirability to ascertain the extent of elimination or minimization of "information asymmetry" or 'imperfect information' about drug use and effects is of concern in this work. The issues of: not available drugs, delay in medicines supply to needy patients or clients, non-affordability of drugs, expiration of drugs, low internally generated revenue from sales of drugs, and quality and efficacy of drugs became systemic and popular agenda of the older policy of drug prescription-fill. These could have heralded the imperatives for the formulation of the new policy and its goals.

* 1. ***PROBLEM STATEMENTS:***

**1.1.1 The gaps to be filled by this Research Work:**

This research is focused on addressing the following research gaps, which may be responsible for many policy failures.

1. How Policy goal formulation can effectively herald accomplished mission-oriented innovation policy to resolve this healthcare challenge of providing adequate, quality, safe, affordable, and efficacious drugs to the teaming Hospital Patients population15.

2. Strengthening the supply chain Management System to ensure a sustainable supply of drugs, vaccines, and commodities, especially life-saving commodities16 .

3. How the formulated goals can impact the course of the innovation goal-setting policies.

4. How the formulated policy goals can gain acceptability of the majority of the stakeholders to preclude policy failure.

5. To ascertain the feasibility and sustainability of the policy goals formulated to attain the overall purpose of the policy decision.

In any good and implementable Public Policy formulation, having a well-defined and articulated policy goal is a sine qua non to the definition of the course of action and success of the Policy decision. Getting the policy goals right at the formulation stage is imperative for the overall success of the policy decision.

Feasible and sustainable goals would preclude long-run policy decision failure. Most of the organizational failures could be attributable to poor or unachievable policy goals pursued. Policies failures are predicated on unfeasible and unsustainable policy goals which aptly implies that the Actors and the Public support for the policy are either feeble or completely withdrawn. The Public whose interests are put in jeopardy by the policy decision goals are usually non-compliant with the policy and would do all within their reach to frustrate the policy agenda. If such a population is in the majority, then there would be an outright rejection of the policy through mutinous actions. In the formulation of policy goals, the political, socio-economic, and socio-cultural factors must be evaluated to be in favour of the policy. Similarly, the availability of adequate manpower, knowledge and skills, infrastructure needed, incentives, and welfare for workers need to be evaluated to be okay for the implementation of the policy goals. These must be ascertained else the policy dies before arrival. This would have consequential negative impacts on the organization in terms of loss of time, resources, energy, and purpose as the problem the policy sought to solve remains unattended and consequently unabated. Goal-setting for wicked problems requires the engagement of stakeholders outside the Government to reach these goals17. This assertion complements the clamant need to design objective policy goals that the majority of the stakeholders outside the Government (Management) are positively disposed to. Another trend within governance is a shift from a more centralized and closed form of governance to a more collaborative form of policy-making that includes the private sector18. Accordingly, there is a necessity to shift from a more centralized form of Management to a more collaborative form of policy-goal-making that will take cognizance of the feelings, interests, desires, and aspirations of the other stakeholders, including the public. Management or governance through a defined goals path, as synonymous with mission-oriented innovation policy, is a panacea for solving this problem of adequate, quality, safe, and efficacious drug supply to the needy patients & clients of this Hospital. Governance through goals perspectives are goal-getting policies that function by setting goals and then defining the instruments needed to reach them19a & b.

* 1. **IMPORTANCE OF THIS RESEARCH TO SCIENCE:**

**The study reveals a methodological approach to evaluating a policy's financial feasibility and sustainability by assessing the technical, economic and administrative components. The study also reveals a progressive increase in efficiency of the new policy year after year. This study, therefore, describes the new policy as efficient and cost-effective as compared with the older policy. The research work further assesses the relative ease of Patient’s access to quality healthcare solutions through proficient and adequate mechanism of provision of essential medicines by the staff and Management of the Hospital. The findings reveal a significant improvement in the Patient’s outcome, as well as the effectiveness and efficacy of the National Health & Drug policies at boosting the general Healthcare delivery in Nigeria. The study describes vividly an approach for assessing the feasibility and sustainability of healthcare policies in a hospital setting that will maximize Patient’s outcome, using feasibility powers, dispensing panels, and the policy goals factors. The manuscript also explores the mode of evaluating impacts of Public Policy on healthcare delivery efficiency through evaluation of indicators like drug availability, affordability and ease of accessibility to patients.**

**2. THE RESEARCH METHODOLOGY:**

This research was carried out at the University of Benin Teaching Hospital, Benin City, Nigeria, between January 2018 and December 2022 for the new policy, and between January 2014 and December 2017 for the olde alternative policy. Written consent and ethical approval of the Management of the University of Benin Teaching Hospital were obtained, vide protocol Number ADM/E22/A/Vol.VII/1483011857 through the Health Research Ethics Committee to carry out this research work in the Hospital using the staff, patients, clients, and the Hospital’s books and records. Thereafter, the data were objectively collected using written, structured questionnaires, which were filled out of free will by staff, patients & clients, and management staff as respondents to ascertain the level of acceptability of each policy-goal factor for feasibility and sustainability by the respondents.

The questionnaires were structured such that each policy goal factor could be rated on a scale of 0-5 by the respondents according to how much importance they assign to each concerning feasibility for implementation and sustainability (both for attainment of stated goals and objectives). The data were collated, and the frequency of scores for each policy goal factor was determined. This was multiplied by the respective rating or scoring factor for each policy goal factor to get the power rating (feasibility rating or feasibility power) of each goal factor, as in Tables 1 and 2. Only quantitative methods of data collection were used from primary sources. The data on the hospital’s yearly bed occupancy, staff nominal roll, annual salaries and patients & clients’ population that patronize the Hospital, etcetera, were obtained from the Hospital’s primary sources in the Department of Medical Records and Directorate of Personnel Matters and Accounts & Finance. The data for drug dispensing panels for 2018-2022 and 2014-2017 were obtained from the Pharmacy Department for the new and old policy alternatives respectively.

The data were collated, analyzed, and interpreted as much as possible, using *The GraphPad Prism 6 Two-Way Anova and The unpaired t-test (parametric) methods of analysis of variance.*

1. ‘The policy goals factors are represented by letters A, B, C, D, E, & F, according to Prof. Abdulrauf Ambali, (2021)20, Where:

A = Adequate and ethical provision of public goods/services;

B = Reducing/resolving externalities

C = Minimizing monopolies of drug supply by outside (private sector) Pharmacies

D = Minimizing information asymmetry (wrong drug information) to patients by market forces.

E = Ensuring proper management of available resources

F = More equitable distribution of drugs and allied products/services to the patients.

The replicates (the score factors) are represented by numbers 0,1,2,3,4 and 5.

***2.1 EXCLUSIONCRITERIA:***

Staff who were less than five years old in the Hospital were excluded from taking part in the questionnaire, and patients and clients who had visited the hospital for less than four weeks.

**2.2 DATA ANALYSIS:**

The ANOVA summary table was prepared, and the null hypothesis was tested using GraphPad Prism 6, Two-Way ANOVA. The results were interpreted as much as possible and the conclusion drawn. The data for the dispensing panels for both old and new policies obtained from the Hospital records were quantified and used to evaluate administrative, economic & financial, and technical feasibility and sustainability based on effectiveness and adequacy, as shown in Tables 3-5. The unpaired t-test (parametric) of The GraphPad Prism 6 was used in the analysis of variance.

1. ***RESULTS & INTERPRETATIONS*:**

A total of 600 questionnaires were distributed to staff, patients, clients, and the Management for completion. 25(4.2%) were not retrieved due to misplacement by the respondents. 7(1.2%) were returned unattended or uncompleted by the respondents who complained of lack of time. The results are shown in Tables 1 and 2 below.

**TABLE 1: THE FREQUENCY OF SCORES**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Factors→  Replicates↓ | A | B | C | D | E | F |
| 0 | 6 | 6 | 6 | 12 | 4 | 4 |
| 1 | 16 | 34 | 20 | 22 | 18 | 18 |
| 2 | 46 | 26 | 52 | 40 | 42 | 36 |
| 3 | 84 | 66 | 66 | 44 | 56 | 62 |
| 4 | 96 | 90 | 92 | 88 | 76 | 90 |
| 5 | 34 | 60 | 44 | 76 | 76 | 64 |

The frequency of scores for each policy goal factor was multiplied by the score rating factor to obtain the feasibility powers as in Table 2 below.

On the columns, at ***α*** = .05, F(6,30) = 4.401 and ***P*** = .003 with percentage (%) of total variation = 14%.

On the rows, at ***α*** = .05, F(5,30) = 23.98 and ***P*** = .0001 with percentage (%) of total variation = 68%. The two-way ANOVA summary table of The GraphPad Prism 6 used to analyze Table-2 shows that there are significant differences in the feasibility powers among the various policy goal factors (column factors), at ***α*** = .05, F (6,30) = 4.401 and ***P*** = .003 with a percentage total variation of 14%. Therefore, the Null hypothesis is rejected for the policy goal factors. On the rows, there is a significant difference among the treatment factors at ***α*** = .05, F (5,30) = 23.98, and ***P*** = .0001 with a percentage total variation of 68%. Since the calculated ***F*** value is greater than the critical ***P*** value on each axis, the Null hypothesis is rejected while the alternate hypothesis is accepted.

**TABLE 2: THE FEASIBILITY POWERS**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Factors→  Replicates↓ | A  Frequency x Replicate | B  Frequency x Replicate | C  Frequency x Replicate | D  Frequency x Replicate | E  Frequency x Replicate | F  Frequency x Replicate |
| 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1 | 16 | 34 | 20 | 22 | 18 | 18 |
| 2 | 92 | 52 | 104 | 80 | 84 | 72 |
| 3 | 252 | 198 | 198 | 132 | 168 | 186 |
| 4 | 384 | 360 | 368 | 352 | 304 | 360 |
| 5 | 170 | 300 | 220 | 380 | 380 | 320 |
| Total: | 914 | 944 | 910 | 966 | 954 | 956 |
| Mean | 152.0 | 157.3 | 151.7 | 161.0 | 159.0 | 159.3 |

***3.1 TECHNICAL, ECONOMIC, AND ADMINISTRATIVE GOALS FEASIBILITIES:***

**Technical feasibility and sustainability assessment:** This is a measure of the effectiveness and adequacy of the new policy alternative compared to the older policy. Effectiveness, in this sense, refers to the degree to which the new policy can lead to the attainment of the desired goals of the policy.

Tables 3-5 show the effectiveness of drug dispensing panels of the 100% drug prescription-fill policy compared with the older policy.InTables 3-5, the dispensing panels were analyzed for technical, economic & financial, and administrative feasibility and sustainability using unpaired t-test (parametric).

In Table 3, there are significant differences within and between the rolls and columns factors. Number of prescriptions treated for each of new and old policies: At ***P*** = .05, there is significant difference of 85% between the number of prescriptions treated in the old policy and the new policy.

Also, for Number of drug items prescribed: At ***P*** = .05, P = .001, t (7) approximately 81% difference occurred, which is a significant difference. Number of drug items dispensed: At ***P*** = .05, P= .001, t (7), about 82% difference occurred, implying a significant difference. The frequency of Not available drugs: At ***P*** = .05, ***P*** = .010, t (7) =3.515, and a significant difference of 64% was calculated.

**TABLE 3: SOME DRUG DISPENSING PANELS**

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Variables  → | Number of prescriptions | | Number of Drug items prescribed | | Number of Drug items dispensed | | Freq of not-available (NA) Drugs | |
| Policy →  Years ↓ | Old | New | Old | New | Old | New | Old | New |
| 1 | 119,961 | 352,463 | 361,849 | 961,127 | 299,847 | 947,383 | 34,853 | 4,490 |
| 2 | 123,847 | 288,724 | 373,571 | 795,310 | 323,679 | 782,229 | 35,982 | 5,282 |
| 3 | 187,830 | 297,131 | 566,569 | 811,522 | 500,602 | 800,204 | 54,572 | 3,069 |
| 4 | 205,747 | 385,967 | 623,940 | 1,015,187 | 606,200 | 1,001,503 | 9,958 | 3,863 |
| 5 |  | 361,881 |  | 927,292 |  | 910,453 |  | 9,444 |
|  | At ***P*** = .05, ***P*** = .001, t(7) = 6.165, R sq = 0.8445. There is a significant difference. | | At ***P*** = .05, ***P*** = .001, t(7) = 5.529, R sq =0.8137. There is a significant difference. | | At ***P*** = .05, ***P*** = .001, t(7) = 5.683, R sq =0.8219.  There is a significant difference. | | At ***P*** = .05, ***P*** =.010, t(7)= 3.515, R Sq = .6384. There is a significant difference. | |

In Table 4, the number of not-funded drugs by patients, at ***P*** = .05, ***P*** = .123, approximately 31%, no significant difference. But at ***F*** (3,4) = 69.74, ***P*** = .001, there is a significant difference at ***P*** = .05. The percentage of funding ability: At ***P*** = .05, there is no significant difference. But at ***F*** (3,4) = 1141, ***P*** value = .0001, there is a significant difference at ***P*** = .O5 for F test. Percentage of Not-Available drugs to patients, at ***P*** = 0.05, ***P*** = 0.005, which is about 70%, F (3,4) = 228.3 and P value = 0.0001, there is a significant difference at both t and F tests at ***P*** = .05, accounted for by 70%. Drugs availability: At ***P*** = 0.05, ***P*** = 0.001, an approximate of 83% difference., there is a significant difference.

**TABLE 4: MORE DRUG DISPENSING PANELS**

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Variables → | Number of Non-Funded drugs by patients | | % Funding-ability of Patients | | % Not-available (NA) Drugs to Patients | | Drugs Availability | |
| Policy →  Years ↓ | Old | New | Old | New | Old | New | Old | New |
| 1 | 27,149 | 9,254 | 91.7 | 99.0 | 10.4 | 0.47 | 326,996 | 956,637 |
| 2 | 13,910 | 7,799 | 95.9 | 99.0 | 10.0 | 0.66 | 337,589 | 790,028 |
| 3 | 11,395 | 8,249 | 97.8 | 98.98 | 9.63 | 0.38 | 511,997 | 808,453 |
| 4 | 7,782 | 9,821 | 98.7 | 99.0 | 1.8 | 0.39 | 613,982 | 1,011,324 |
| 5 |  | 7,395 |  | 99.2 |  | 1.03 |  | 917,848 |
|  | At **P** = .05, ***P*** = .123, t (7) = 1.751, R sq =0.3047. No significant difference. But at ***F***(3,4) = 69.74, ***P*** = .001. There is a significant difference at ***P*** = .05. | | At ***P*** = .05, ***P*** = .064, t(7) = 2.203. There is no significant difference. But at ***F***(3,4) = 1141, ***P*** value = .0001. There is a significant difference at ***P*** = .O5 for the ***F*** test. | | At ***P*** = .05, ***P*** = .005, t(7) =0.65, R sq = .7025.  ***F***(3,4) 228.3and P value = .0001.There is a significant difference at both t and ***F*** tests at ***P*** = .05. | | At ***P*** = .05, P = .001, t(7) = 5.754, R Sq = .8255. There is a significant difference at ***P*** = .05. | |

**TABLE 5: MORE DRUG DISPENSING PANELS**

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Variables → | % Availability of Drugs | | Staff Strength | | Staff Annual Salary  (In millions of Naira) | | Work output  Efficiency | |
| Policy →  Years ↓ | Old | New | Old | New | Old | New | Old | New |
| 1 | 90.34 | 99.5 | 35 | 50 | 74.08 | 149.81 | 23.80 | 52.63 |
| 2 | 90.36 | 99.33 | 41 | 54 | 90.66 | 161.44 | 21.93 | 40.34 |
| 3 | 90.37 | 99.62 | 46 | 52 | 112.41 | 165.90 | *30.23* | 42.74 |
| 4 | 98.4 | 99.62 | 47 | 60/ | 122.61 | 189.64 | 35.82 | 47.00 |
| 5 |  | 98.98 |  | 60 | \_ | \_ |  | 42.15 |
|  | At ***P*** = .05, ***P*** = .005, t(7) = 3.976, R Sq = .6931. There is a significant difference. | | At ***P*** = 0.05, ***P*** = .006, t(7) = 3.855, R Sq = .6798. There is a significant difference. | | At ***P*** = .05, ***P*** = .003, t(6) = 4.860, R Sq = .7974. There is a significant difference at ***P*** = .05 | | At ***P*** = 0.05, P = .003, t(7) = 4.551, R Sq = .7474. There is a significant difference at ***P*** = .05 | |

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**3.2. DISCUSSIONS**

The National Strategic Health Development Plan-2 and the National Drugs Policy have very well-articulated goals and objectives that require a well-purposed policy framework to attain.

The distribution of wealth and welfare can only be achieved through public policies formulated by the governing body, and by giving more to the needy, social welfare can be maximized21. To this effect, the Hospital offers some measures of credit facilities to Patients and Clients being treated or managed under emergency or urgent situations or those who may have paucity of funds to pay for their drugs immediately. This facility is in good stead to facilitate timely drug delivery to the patients and clients, to save more lives, alleviate pains and sufferings, and reduce and/or cushion the financial burdens on the patients & clients and their caregivers. This can be attested to by a significant reduction in the number of non-funded drugs by patients in the new policy compared with the old policy, at ***P*** = 0.05, ***F***(3,4) = 69.74, ***P*** = 0.001, shown in Table-4. This, indeed, is a form of social justice for the patients & clients. This Government (Hospital Management) good gesture may certainly not be obtainable under the market force (community pharmacies) where some patients & clients may alternatively opt to source their drugs. The Hospital Management institutionalized a new policy agenda to address these perennial systemic issues.

1. We used the following standard goals specifications, according to Prof. Abdulrauf Ambali, 2021 in the analysis of Management’s new policy goals: Adequate and ethical provision of public goods/services: Health as a social service, adequate and ethical medicines supply by the Government seeks to address issues of social justice, entitlements, and efficiency. Health services can be provided totally by the Government and or partially through market forces, but the benefits are partially reaped by society and individuals who consume the services directly22. Reducing/resolving externalities: These are benefits or costs that are enjoyed or borne respectively by external persons or organizations to the University of Benin Teaching Hospital that are not directly involved in the provision of healthcare services. Minimizing monopolies of drug supply by outside (private sector) Pharmacies: Adequate quality and efficacious medicines supply to patients or clients in the Government Hospital is a social justice rather than economic, which is the main focus and consideration of the market force. If the monopolies are not curtailed by the Government, the patients and clients may be over-exploited by the market forces. Under such conditions, a single firm can supply the needed drugs more efficiently than any other arrangement including competition23. Minimizing information asymmetry (wrong information) by market force24: In this case, neither the patients nor the medicines attendants under the market forces have sufficient knowledge, data, or information concerning the uses and safety of the medications to make rational decisions. Ensuring proper management of available resources & more equitable distribution of drugs and allied products/services to the patients were made feasible through the introduction of some patronage policies like granting of credit facilities to patients on admission, the role of the social welfare officers to write a waiver for some indigent patients who are considered not to have viable means of paying for their drugs.

The analysis in Table-2 showed that there was a significant difference in the feasibility of the various policy goal factors. That suggested that the administrative feasibility of each policy goal factor varies, but they were all found achievable with a percentage total variation of 14%. Technical feasibility were assessed based on the effectiveness and adequacy of the dispensing panels. Table-3 shows the number of prescriptions treated in the old policy compared with that of the new policy, showing a significant difference accounted for by about 85% R square value. There are more prescriptions treated in the new policy by pharmacies compared with the old policy. Also, a significant difference occurred in the number of drug items prescribed in the two policies, with the new policy value much higher than the old policy value, and the difference explained by about 81% of the R square value. The number of drug items dispensed in the new policy was similarly higher than the old policy value with the difference explained by about 82% R square value. For the frequency of occurrence of “not-available drugs” (NA) in the two policies, the old policy showed a significantly higher value of NA than the new policy, with the difference accounted for by about 64% R square value.

In Table- 4, the number of non-funded drugs by the patient or clients was significantly higher in the old policy than in the new policy, at ***P*** = .05, ***F***(3,4) = 69.74, ***P*** = .001. That means, it was easier and cheaper for patients to fund their drugs in the new policy relatively compared with the old policy. The attestation to this is that the percentage of funding-ability was significantly higher in the new policy than in the old policy. The percentage of NA drugs was significantly higher in the old policy than in the new policy, and this was accounted for by an R square value of about 70%. 83% and 69% of more drugs availability and percentage drug availability, respectively, in the new policy than in the old policy. The staff demand and salaries for the new policy were found to be significantly higher than in the old policy, with the difference explained respectively by an R square value of 68% and 80%. This is justifiable by the greater workload in terms of the number of prescriptions treated, and drug items dispensed, which were significantly higher in the new policy than in the old policy. A comparison of the work-out-put efficiencies showed that there is a significant difference explained by an R square value of 75% at ***P*** = 0.05. The efficiency of work-out-put is higher in the new policy compared with the old policy. This further corroborates the justifications for higher demand in manpower and total expenditure on salary and also an attestation to effective and adequate technical feasibility and sustainability.

The sustenance of the high personnel demand culminating in greater expenditure on salary, in an addendum to a higher percentage of drugs availability (99.41%) to patients compared to 92.47% for the old policy, are sure demonstrations of economic & financial feasibility of the new policy. There is no doubt, therefore, that there are effective and administrative competencies in place which contributed significantly to the sustainability of the significantly improved dispensing panels: a higher number of prescriptions treated, a greater number of drugs prescribed and dispensed, a significantly reduced frequency of occurrence of “Not-Available Drugs” and the percentage of such occurrences. An increase in the percentage of funding-ability of drugs by patients & clients and a significant reduction in the number of non-funded drugs by same further typify the administrative competencies of the hospital.

**If we want our society to continue to develop, we must adhere to the principles of sustainable development and environmental policy25. Sustainable development policies are to be promulgated and implemented in Healthcare institutions in Nigeria, as a developing nation, if there must be growth and development in this sector of the economy. “There is evidence that sustainability has the potential to affect multiple value creation levers over both the short and long terms. For example, sustainability efforts can result in a stronger brand and greater pricing power (a value creation lever). This can lead to increased margins, producing greater profits and maximizing total shareholder return. Sustainability can also help improve customer loyalty and reduce the rate of churn, thereby boosting market share and revenue growth. If enabling these value creation levers can help increase profits, free up cash flow, and ultimately improve total shareholder return, then assisting leaders and managers of companies to implement sustainable policies should be highly desirable”26. Such assistance is desirable for Healthcare leaders in formulating and implementing feasible and sustainable healthcare policies that will yield greater patient’s treatment outcomes.**

**In building healthcare systems of a developing nation, like Nigeria, adoption of the tenets of 100% drug prescription-fill policy in a Hospital practice can be of immense benefits. It is understandable that appropriate policy implication is important for organizing the social issues toward sustainability27. In this paper, the social issues are identified as availability, affordability, accessibility, and sustainability of quality and efficacious drug supply to the needy patients & clients. 'The "feasibility of a policy" refers to the likelihood that a proposed policy can be successfully implemented and achieved in practice, considering all relevant factors like political support, administrative capacity, financial resources, social acceptance, and legal constraints within a given context; essentially, whether it is practical and achievable given the current situation. Political feasibility is a measure of how well a solution to a policy problem, will be accepted by a set of decision makers and the general public. For a policy to be enacted and implemented, it must be politically acceptable, or feasible'28. The success rate of the 100% drug prescription-fill policy at University of Benin Teaching Hospital is a sure proof of its political support and acceptability. ‘A feasibility assessment is a systematic evaluation of the practicality and viability of a proposed project or policy, taking into consideration factors such as economic, technical, legal, and operational aspects.This process helps decision-makers determine whether an initiative is worth pursuing by analyzing potential risks, costs, and benefits associated with it. The insights gained from a feasibility assessment can inform future public policy decisions and shape the direction of projects aimed at addressing emerging challenges’29. This justifies the necessity for this research as a contribution to a body of scientific knowledge and quality of healthcare.**

**Over the past decade, rising prescription drug costs have garnered substantial attention from policymakers, payers, patients, and other stakeholders30. This, undoubtedly, led to late commencement of drug therapy or outright non- commencement due to inability of the patients to fund their drugs. This paper has identified some patronage measures or policies put in place by the Hospital Management to mitigate this ugly and detrimental occurrence. Patients are interested in having access to affordable cutting-edge prescription drugs31,32. Health Insurers are concerned about the high costs of covering new expensive medications due to limited information about their efficacy33,34. While insurance coverage can help patients access specialty drugs at lowe**r **prices, high out-of-pocket costs can still be a substantial barrier to access35,36. These, in most scenarios, constitute a public issue and enter a public issue agenda. However, high cost remains a necessary impediment to accessing prescribed drugs by the patients. Effective and efficient patronage policy put in place by the Government is a panacea to mitigating these issues. Policymakers must balance these competing concerns while considering overall healthcare system costs, drug efficacy, political priorities, and the feasibility of a given policy37. Such competing interests and priorities complicate the process of identifying and implementing effective policy solutions.38**

**4.** **CONCLUSION:**

The 100% drug prescription-fill policy at University of Benin Teaching Hospital has been shown by this research to have readily feasible and sustainable goals. The research further revealed that the new policy has a better chance of thriving than the old policy in terms of ethically satisfying the drug needs of the majority of the patients or clients’ population. The new policy has proven, by this research, the reasonable attainment of both the National Strategic Health Development Plan-2, (2018-2022) and the National Drugs Policy 1997. According to the findings of this paper, we have no hesitation whatsoever in recommending the new policy for implementation and sustainability at the University of Benin Teaching Hospital and other desiring Healthcare institutions in Nigeria and beyond. **The new policy has impacted the patient’s treatment and/or management outcomes significantly through enhanced or efficient work-out-put by the staff, reduction of out-of-stock phenomenon to the very insignificant level, improved accessibility to drugs by the patients, improved funding ability for drugs by the patients, timely and rationale drug therapy administration to the patients, securing and garnering the implicit confidence, trust and faith of the patients and the public in the Hospital Pharmacies, as a second to none, source of quality medicines supply for effective and efficient therapeutic interventions. The new policy has positively touched the economic power of the Hospital by the perceived progressive increment in the internally generated revenue of the Hospital through drug sales. This bears a direct effect on the physical developments of the Hospital, welfare care for both the staff and the patients.** Public Policy goals feasibility and sustainability assessment should be periodically done and should form the bedrock of any policy framework. No matter how important and valuable this policy goals may seem to the Management, it is advisable that they should be scientifically and periodically evaluated for feasibility & sustainability by the Management and Staff, employing the services of public policy analysts to forestall policy decision failure.

**4.1 RECOMMENDATIONS:**

Based on the outcome of this work we hereby make the following recommendations to the Management and Staff of the University of Benin Teaching Hospital:

The ’100% drug prescription-fill policy’ for implementation and sustainability at the University of Benin Teaching Hospital because it has reasonably satisfied the goals and objectives of the National Strategic Health Development Plan­­­-2 and the National Drugs Policy and other Health policies of Nigeria.

Public Policy goals feasibility and sustainability assessment should be periodically done and should form the bedrock of any policy framework in the Hospital.

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**COMPETING INTERESTS:**

We hereby certify that there was no conflict of interest whatsoever in carrying out this work.

**AUTHORS’ CONTRIBUTIONS**

Okuoimose Jacob Egharevbadesigned the study, wrote the protocol, did the literature search, carried out data collection and collation, performed the statistical analysis, did the interpretation and discussion, and wrote the first draft of the manuscript.

Thaddeus Aichinede assisted in accessing the Hospital records and data collection and collation for dispensing panels for this work.

S.E Aghahowa did the study design and data analysis with Okuoimose Jacob Egharevba

Abdulrauf Ambali supervised the entire work and made necessary corrections where necessary.

All authors read and approved the final manuscript.

**ETHICAL APPROVAL AND CONSENT :**

Written consent and ethical approval of the Management of the University of Benin Teaching Hospital were obtained, vide protocol Number ADM/E22/A/Vol.VII/1483011857 through the Health Research Ethics Committee to carry out this research work in the Hospital using the Staff, Patients, Clients, and the Hospital’s Books and Records. A scanned copy is forwarded along with this manuscript.

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