Analysing current online health services and proposing a model for health consultancy for baby care

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ABSTRACT

In this paper, we are going to analyse the current online health services provided by the government and our major focus will be in the field of baby healthcare. Baby care is one of the toughest jobs in life. Caring for a newborn in itself is a challenge. There are various things which need to be kept in mind for the good health of the baby. Our idea is to propose a model of "health consultancy for Baby Care". The model is an online medical consultancy service which will keep the parents of the newborn baby well informed about the various aspects which should be kept in mind during the baby care. Baby health is a very important aspect when it comes to a healthy society. A healthy baby in the initial stages of life is essential because this will make the baby grow into a healthy human being in the future. So this proposal is an effort from us to enlighten the people with some important techniques which can be helpful for them to take care of their babies.

Keywords— Healthcare, Online health consultancy, Babycare

1. INTRODUCTION

1.1 Present system vs. the proposed system

We have searched some websites related to baby care management system and then we compared the features that they are providing with our websites. Some of the websites that we used for comparison are discussed in this paper.

https://www.babycareadvice.com/ is an online private website for baby health care. Some of the drawbacks of the website that we found are that they are providing fewer features, the website is sort of a business site where you can purchase any of their preferred materials and not providing much information regarding vaccination

http://nhm.gov.in/ is the site for National Health Mission. Some of the drawbacks of the website that we found are that they are providing some features in their sites which are not related to baby care system, they even do their advertisement and another business campaign in this site and it is very difficult for the parents to get what they are looking for in the site.

https://www.who.int/ is the website for the World Health Organisation. Some of the drawbacks of the website that we

found are that they are providing too many features which are not necessary and their website is too complex

https://www.verywellfamily.com/ is the website for family welfare. Some of the drawbacks of the website that we found are that they are providing information regarding the mother only and there is nothing beneficial written in the site regarding the baby and its vaccination and the site is too complex

https://www.nhp.gov.in/ is the government health service website and it is called the National Health Portal of India. Some of the benefits of the website that we found are that they are providing details about the various diseases in detail. The drawback is that there is not much specific to baby healthcare issues.

2. METHODOLOGY

We conducted a survey in order to know what the views of the people about the various health services are provided by the government online and whether they are useful for them to get useful information about baby healthcare and parenting techniques. We found the following results:

87% of the people did not find the websites useful for baby healthcare related issues.

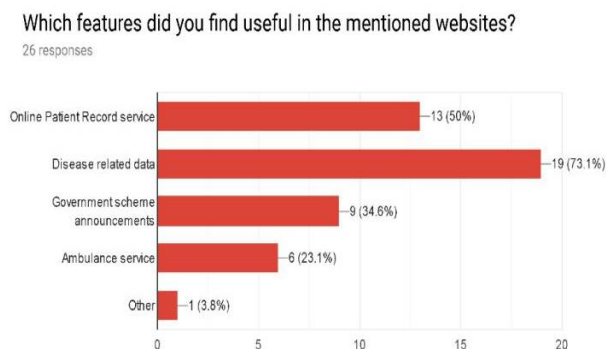Here's a chart representing the usefulness of the features available on these websites.

Fig. 1: Survey reports

46% of the people admitted that there is a need for a government healthcare website which solely focuses on baby healthcare related issues.65% of the people are not aware of the vaccines available and the vaccination schedules to be followed for the babies. We suggested several features to the people and asked for suggestions about features which would be useful for baby healthcare related issues.

Some of them are:

- Vaccination Scheduler and Reminder for Babies
- Height and Weight
- An analyser for both Adults and Babies
- Health tips and Hygiene tips advisor for Babies
- Incubator Finder (checks the availability of incubators available in nearby hospitals)
- Doctor availability and Appointment maker.
- Birth Registration Guide
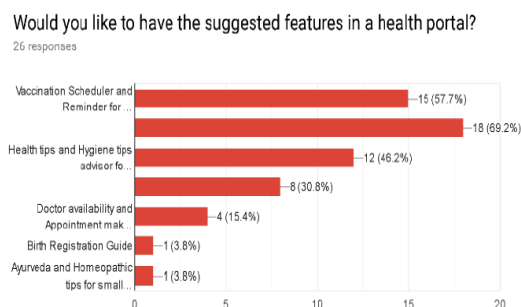- Ayurveda and Homeopathic tips for small issues

Fig. 2: Survey reports

A major number of people who want the websites for baby healthcare are working couples who live in metropolitan cities and don't get enough time and don't have enough knowledge about how to care for their young ones.

3. THE CURRENT HEALTH SCENARIO

From a survey conducted in past [2], it shows that the number of polio cases according to the region. As we can see south-east Asia and Africa are mostly affected by polio until the year 2000. Whereas in developed countries like America the case of polio was reduced to 0 during the year 1985 itself.

The difference in both the cases is due to the fact that south-east Asia and Africa are developing country where the system still runs manually whereas in America they do all the works systematically. They have proper websites regarding vaccination and this helped them a lot in reducing the paralytic polio disease.

According to a report submitted by [1], it shows the total percentage of children aged between 12-23 months who received full immunization. As displaying from the chart, it is clearly shown that the majority of the Indian states has less than 75%, immune children. The survey was taken during the year 2013-14.

The reason that so many children in India are unable to receive vaccination are parents forgetting the general schedule of their children. This could be mainly because they are busy in their day to day activities that they are unable to give proper time to their families. These people don't have the proper resources to give vaccination to their children.

4. THE PROPOSAL

Our proposal is to make a health consultancy online platform which can help newly made parents easily take care of their young ones. The platform would be built in collaboration with

the government so as to create a sense of trust regarding the quality and type of services provided on the platform. There will be a lot of facilities available from our side for the service of the customers. Since baby parenting is a tough job, our web application will provide various features to help you with important tasks such as immunization scheduling and reminding, proper height and weight analysis, government schemes for the new born babies, illness predictor, nearby doctor's place, etc.

These are a very essential part of the health care process of a new born. Not many reliable references are available for the baby care topic. Information regarding all such processes is scattered across the web and also some of these are not completely reliable.

In order to solve this issue, we are proposing an idea for a social enterprise which works in collaboration with the government hospitals to provide these baby care health facilities online reliably and at minimum cost to the people. This would result in less rush in the government hospitals and also in digitization of the healthcare services.

The proposal takes help of well qualified and experienced doctors to make the various functionalities of our proposal.

4.1 Overview of the proposed system

- Parent sign up and login for personalized guidance
- Nutrition guidance for the baby
- Vaccination charts with calendar alerts
- Best hospital for a particular service like an incubator
- Weight and height analyser based on the user input
- Guidelines for hygiene
- General tips for daily practices
- Roughly predicting the disease or an ailment based on the symptoms provided by the parents (This module will be implemented using the prediction analysis concept of Machine Learning)
- Sending queries to a doctor through a mail service
- Providing information about the government health schemes currently available
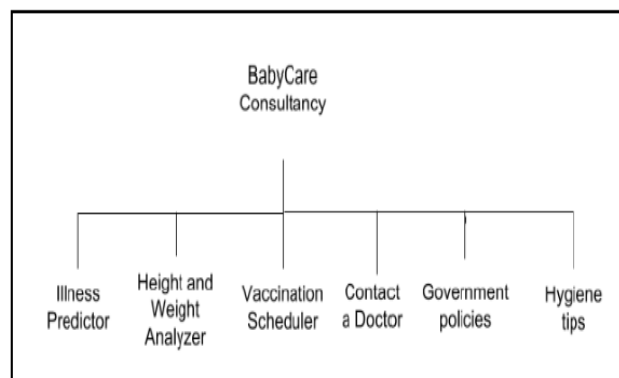
4.2 Architecture and framework

Fig. 3: Various components of our website

4.2.1 Vaccination scheduler: The vaccination scheduler is the module which helps the parents in order to get a schedule of the time period after which the parents should take their babies for vaccination. It tells about the various vaccines which should be provided to the babies in order to protect and immune them against the various diseases which can be very fatal to them if they are not immune against them. These vaccines are provided free of cost or at minimal cost at every health centre and government hospitals throughout the country.

This module takes to input the date of birth of the baby and creates a vaccination schedule for the parents which they should follow so that the baby gets the immunization shots well within time and remains healthy in the future.

Various vaccines which have included in our vaccination scheduler are BCG, Hepatitis- B, Polio, Measles, Chicken Pox Hepatitis A MMR, Hib, Typhoid, DPT, Dysphoria, and TT-Tetanus Typhoid.

Table 1: Vaccination scheduler chart

Age	Vaccine
Birth	BCG, Oral Polio Vaccine 1st dose, Hepatitis B
6 weeks	DPT+ Hepatitis B+ Hib Vaccine, Oral Polio Vaccine 2nd dose
10 weeks	DPT+ Hepatitis B+ Hib Vaccine, Oral Polio Vaccine 3rd dose
14 weeks	DPT+ Hepatitis B+ Hib Vaccine, Oral Polio Vaccine 4th dose
9 months	Measles
>=1 year	Chickenpox Vaccine, Hepatitis A Vaccine
15 months	MMR
16-18 months	DPT 1st booster dose, Oral polio vaccine 1st booster dose, Hib vaccine Boster dose
>=18 months	Hepatitis A 2nd dose
2 years	Typhoid Vaccine
5 years	Typhoid vaccine, DPT 2nd booster dose, Oral Polio Vaccine 6th dose
10 years	TT booster dose
16 years	TT booster dose

Note: the above vaccination schedule has been taken from the government health centre.
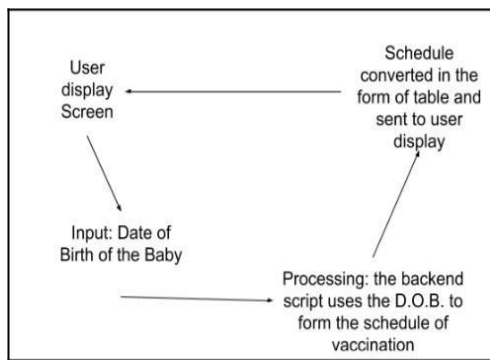

Fig. 6: Vaccination scheduler framework

4.2.2 Illness predictor: In our proposal, we are integrating a facility of predicting disease or illness of a patient based on symptoms provided with a Probability number. The user will be provided with a facility of giving symptoms to our system through a Form on the front-end side and will be given an output of possible disease with a probability number.
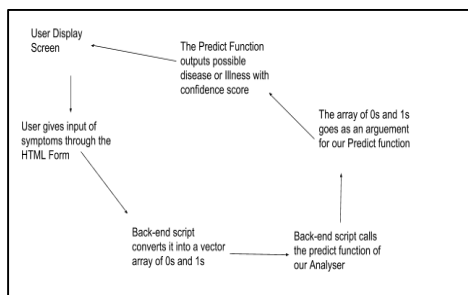

Fig. 7: Illness predictor framework

4.2.3 Health and Hygiene tips for the babies: This is the module which provides the people with the various hygiene and health care tips for the wellness of the new born babies. These tips are taken by interviewing several doctors who are experts in their fields. These tips are related to the common problems like The environment around the baby, Things to be kept in mind while feeding the baby, Baby clothing, Things about cleanliness and bath related tips and Extra precautions needed etc.
- **The Input for the module:** the user signs in to the website
- **Processing**: User credentials are checked whether they are within the database
- **Output:** the various tips displayed on the screen in an attractive and understandable manner.

4.2.4 Government Policies: This module provides the user with information regarding the various schemes which are live across the country for the welfare of the new born babies. These policies have been by the government of India to provide various health facilities to the new born babies. These policies are not known to all the people and this is the reason why we are including this feature which provides short information and link for further information regarding the policy.

The various policies discussed on our website are: Universal Immunization Programme, Pulse polio Programme Mission Indradhanush, National Vector Borne disease Control Program and Diarrhoea Control Program, etc.
- **The Input for the module** the user signs in to the website
- **Processing:** User credentials are checked whether they are within the database
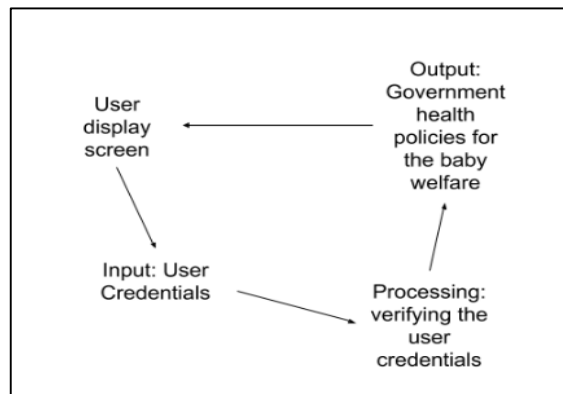- **Output:** various government policies on the website page with the links for additional information.

Fig. 8: Government policies framework

4.2.5 Birth Registration Helper: In India, approximately 26 million births that take place in a year, out of which about 14 million only are registered. Birth registration allows a child to have a nationality, which in turn allows the child to get a passport, open a bank account, obtain credit, vote and find employment. It also helps a child get access to basic health and education services.

Providing information about the process will help people to register the birth of their child.

4.2.6 Incubator Finder: An incubator (or isolette) is an apparatus used to maintain environmental conditions suitable for a neonate (newborn baby). It is used in preterm births or for some ill full-term babies. A feature which would display the incubator availability in the nearest government hospitals and also books an incubator on the spot.

4.2.7 Height and Weight Analyser: This Module of our website is used to process and monitor the growth of the baby. We have collected data regarding the growth and used it to form a height-weight analysis table for babies till the age of 3 years. The data has been verified by the paediatrician and is quite reliable.

Table 2: Height and weight data

	Boys		Girls	
Age (In Months)	Height (In cms)	Weight (In kgs)	Height (In cms)	Weight (In kgs)
0 (Birth)	45 – 52	2.5 – 3.5	45 – 50	2.25 – 3.25
3	57 – 64	4.5 – 6.5	54 – 62	4.25 – 6.25
6	61 – 70	6.25 – 8.25	59 – 68	5.5 – 8.0
9	65 – 73	6.5 – 9.5	64 – 72	6.25 – 9.00
12 (1 Year)	69 – 79	7.25 – 11.0	68 – 77	7.0 – 10.5
24 (2 Years)	80 – 89	10.0 – 13.0	80 – 85	9.0 – 12.0
36 (3 Years)	84 – 95	11.0 – 14.5	82 – 92	10.25 – 14.00

5. CONCLUSION

This paper is a suggestion for the solution of a digital platform which is easy to use as well as provides straight forward solutions about issues related to baby health care. The idea of a social enterprise working in collaboration with the government will surely help to digitize the healthcare services especially for the care of the babies which are born in our country.

6. REFERENCES

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[4] Childhood Immunization Schedule and Safety: Stakeholder Concerns, Scientific Evidence, and Future Studies

[5] WHO Child Growth Standards Length/height-for-age, weight-for-age, weight-for-length, weight-for-height and body mass index-for-age Methods and development