

Evaluation of 'India against Cancer' Web Portal Using Environmental Scan and Google Analytics

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Abstract: The burden of cancer in our country is rapidly increasing. A robust website can serve as an effective tool to create cancer awareness amongst general population and disseminate comprehensive information on prevalent cancers in our country, to healthcare providers. India Against Cancer' website has been developed by the ICMR-National Institute of Cancer Prevention and Research with this vision in mind. The objective of this study was to test the effectiveness of the website 'India Against Cancer' in creating awareness. For this purpose, nearly two and half year since its inception, the website was evaluated using Google Analytics under 3 parameters viz. Audience, Acquisition & Behaviour and by performing an environmental scan of the available national and international websites on cancer prevention and awareness. The data from google analytics was obtained in two phases viz. Phase I-April 2017 to March 2018 and Phase II-April 2018 to March 2019. The results thus obtained showed that the number of visits increased by 282.9% and majority (80.4%) of the visitors were new visitors. Approximately 68.7% was the organic traffic to the portal and 91.2% visitors were from India. The environmental scan of the existing cancer related websites and India Against Cancer website also suggests that the website has substantially served its intended purpose of creating cancer awareness and providing authentic information on cancer to the public over the past two years.

Keywords: Google Analytics, India against Cancer, Web analytics, Web Metrics, Web Portal, Visitors Overview, Environmental scan

I. INTRODUCTION

As the burden of Non-Communicable Diseases (NCDs) is increasing rapidly, with cancer taking the cherry of it all by claiming 9.6 million lives globally [1], it becomes important to effectively use the available resources to catalyze cancer awareness and prevention strategies among the population. Currently, 56.1% of the world's population has internet access[2], making it an effective tool for health awareness. The web portal 'India Against Cancer' was envisioned with the objective to collect, organize and provide authentic information about cancer to common people of India in a simple language. The portal also provides information on diet, healthy lifestyle, busting common myths related to cancer, types of common cancers; their risk factors, signs and symptoms, warning symptoms, diagnostic modalities and treatment options and various financial support facilities available for cancer treatment in the country. Initially the website was developed on the Content management system *Joomla* which was not found to be user-friendly and was not search engine optimized. subsequently a new design of the website was developed on *WordPress* in two languages (English and Hindi). After 2 years of its development, it was deemed necessary to see if the web portal has achieved its intended purpose. In order to objectively evaluate the website two methods were chosen viz web analytics and Environmental scan.

Google Analytics: One of the most popular and effective ways of testing the efficacy of the web portal is through web analytics tool. As defined by WAA (Web Analytics Association): "Web Analytics is the measurement, collection, analysis and reporting of Internet data for the purposes of understanding and optimizing Web usage." [3]. In other words, Web Analytics includes the analysis of both qualitative and quantitative statistics from the website. There are various web analytics tools. e.g. Google Analytics Tool, Core metric tool, WebTrends Tool, Omniture Tool and Open Web Analytics (OWA). Out of these Google Analytics [4] is one of the most popular free analytics tools on the Web. It uses page tagging to collect information from visitors to a site. It also provides support for integrating other analytic

information (for example, WordPress and AdWords). The Google Analytics data do not contain any personally identifiable information and are presented in the form of aggregate data, making it an accessible tool used in research settings without ethical concerns [5,6]. In contrast to the other web analytic tools, Google Analytics offers the chance for an objective, multi-level analysis and visual representation of web statistical data based on log files on the webserver, helping the administration to have a better understanding of the interaction between the visitors/users of the web site and its services. All available data are collected automatically with a high level of accuracy.

Environmental scan: It was chosen to understand the current situation of the websites related to cancer in India. Specific keywords were designed to gauge in the essence of the research objective of this paper. This scan would also help in understanding the missing components in the design of the website (if any).

II. MATERIAL AND METHOD:

II.1 Google Analytics: The evaluation of the effectiveness of the web portal 'India Against Cancer' was undertaken using Google Analytics [3]. Three of the attributes under Google analytics, i.e. Audience, Acquisition and Behavior (metrics) were considered to be best suited to address the research objective of this study. For the purpose of this study, the information about the website 2-years post its inception duration was categorized into various parameters and collated and analyzed for each year separately viz. from Phase I-April 2017 to March 2018 and from Phase II-April 2018 to March 2019.

Audience:

To examine the web portal (website) usage and growth perspective of the commitment of users, several metrics were utilized from the audience category including the total number of visits, unique visitors, number of page views, time spent on each page and overall time spent by the visitor on the website.

Acquisition:

This parameter was used to enumerate the overall engagement of the website and to quantify the reach of the website by noting the geographic location of visitors. It intended to provide information regarding the browser and the devices used for visiting the website which plays a critical role in deciding the user-friendliness of the website.

Behavior:

This parameter was studied to calculate the number of visits on the webpages to understand the relevance of the content provided in the website. It also helps in understanding the type of information visitors look for and hence would provide impetus to upgrade the website as per the need of the audience.

II.2 Environmental scan: A systematic search and scan of various existing national and international websites on cancer prevention was conducted in order to perform a gap analysis of our website.

A keyword search was conducted using online engines to identify illustrative examples and current international trends of national and international websites on cancer prevention. The keywords used for identifying the international websites were "Cancer" AND ("Prevention" or "Health" or "Tools" or "Support") and the keywords used for India based cancer prevention websites were "India" AND "Cancer" AND ("Prevention" or "Tools" or "Support")

We prioritized sites with most information and insights to be gained in line with our research questions. Upon identifying appropriate India-based and international cancer prevention websites, we scanned each website for relevant tools, resources, techniques and design elements. The following parameters were explored in various cancer prevention-based websites:

- Topics covered on the website and their presentation/organization on the website.
- Special features that make the site user-friendly.
- Interactive features used by the website to communicate information about cancer prevention.
- Languages of the information presented on the website.
- Supporting tools or resources that are included in the website.
- India-based websites and their way of communicating cancer prevention information.
- Information on how to combat cancer stigma or have a meaningful conversation about cancer prevention within families and communities.
- Any other engagement tactics used (e.g. membership, social media, blogs).

III. RESULTS

1 Results obtained using Google Analytics:

Audience:

Basic portal metrics (Table 1)

Table 1 depicts the basic portal metrics data for two time periods. It is clear that there was a tremendous increase in the number of visits (282.9%), unique(new) visitors (285.2%) and page views (287.4%) in phase II as compared to phase I. The website visitors' category was further stratified into subcategories like new visitors and returning visitors. The visitor's engagement was also studied by accounting for the time spent on the website.

Table 1: Basic portal metrics

Web Metrics	Phase I: 1 April 2017- 31 March 2018	Phase II: 1 April 2018- 31 March 2019	Percentage Increase (%)
Visits	63567	243,450	282.9%
Unique visitors	51377	197,892	285.1%
Page views	113659	440,347	287.4%
Pages / Session	1.79	1.81	1.1%
Average time on site	2 min 1 sec.	2 min	-0.7%
Bounce rate	74.8%	72.4%	-3.1%

Frequency of visits and users' engagement during two phases (Table 2)

On detailed analysis, we found that in Phase-I, the majority (80.4%) were new visitors while only 19.5% were returning visitors. Similar trends were observed in the second phase-II too. However, the amount of time spent by the visitors in the category of 1-10mins increased in the second year. There was a slight decrease in the number of visitors in the time category of 0-1min in the second phase-II as well as 10min+session duration.

Table 2: Frequency of visits and users' engagement during two phases

Web Metrics	Phase I: 1 April 2017- 31 March 2018	Phase II: 1 April 2018- 31 March 2019
Frequency-Counts of sessions	Sessions (% of sessions) 63567	Sessions (% of sessions) 243450
1-4	61033(96.0%)	234407 (96.2%)
5-8	1086(1.7%)	4732(1.9%)
9-14	407(0.6%)	1672 (0.6%)
15+	1041(1.6%)	1.1%
Engagement – Session duration	Sessions (% of sessions) 63,567	Sessions (% of sessions) 243,450
0-1min	50798(79.9%)	189958 (78.0 %)
1-10min	8622(13.5%)	38248 (15.7%)
10min+	4147(6.5%)	15244 (6.2%)
New visitors (%)	80.4%	81.0%
Returning visitors (%)	19.5%	18.9%

Acquisition: Google Analytics data based on Traffic Source (Table 3). About 68.7% of the visits were organic traffic to the portal. In these cases, users either were probably suggested to use the address of portal or had already saved the address as a favorite, implying a relative engagement. Nearly 26.6 % visits to the portal were through direct traffic and in these visits 84.9% of them were new visits. On the other hand, 4.0% of visits were via referral sites. The most common promotional sites were: cancerhelpline.in (43.1% of referral visits), the site of the nicpr.res.in (18.4%) which is our institutional website and Facebook (6.1%) websites.

Table 3: Google Analytics data based on Traffic Source

Source / Medium		Acquisition			Behavior			Conversions		
		Sessions	% New Sessions	New Users	Bounce Rate	Pages / Session	Avg. Session Duration	Goal Conversion Rate	Goal Completions	Goal Value
		307017 % of Total: 100% (307017)	80.9% Avg for View: 80.8% (0.09%)	248459 % of Total: 100.09% (248229)	72.9% Avg for View: 72.9% (0.0%)	1.8 Avg for View: 1.80 (0.0%)	00:02:00 Avg for View: 00:02:00 (0.0%)	0.0% Avg for View: 0.0% (0.0%)	0 % of Total: 0.0% (0)	\$0.0 % of Total: 0.0% (\$0.0)
1.	google / organic	210903 (68.6%)	80.2%	169219 (68.1%)	73.8%	1.7	00:01:58	0.0%	0(0.0%)	\$0.0 (0.0%)
2.	(direct) / (none)	81641 (26.5%)	84.9%	69357 (27.9%)	72.0%	1.8	00:01:54	0.0%	0(0.0%)	\$0.0 (0.0%)
3.	cancerhelpline.in / referral	5323 (1.7%)	74.9%	3987 (1.6%)	66.6%	1.7	00:02:18	0.0%	0(0.0%)	\$0.0 (0.0%)
4.	nicpr.res.in / referral	2277 (0.7%)	34.4%	785 (0.3%)	39.5%	4.2	00:06:18	0.0%	0(0.0%)	\$0.0 (0.0%)
5.	bing / organic	1254 (0.4%)	82.3%	1032 (0.4%)	77.1%	1.7	00:01:38	0.0%	0(0.0%)	\$0.0 (0.0%)
6.	com.google.android.googlequicksearchbox / referral	769 (0.2%)	87.9%	676 (0.2%)	84.4%	1.3	00:01:21	0.00%	0(0.0%)	\$0.0 (0.0%)
7.	yahoo / organic	607 (0.2%)	73.8%	448 (0.1%)	69.5%	1.9	00:02:23	0.00%	0(0.0%)	\$0.0 (0.0%)
8.	m.facebook.com / referral	505 (0.1%)	84.1%	425 (0.1%)	84.9%	1.3	00:00:54	0.00%	0(0.0%)	\$0.0 (0.0%)
9.	t.co / referral	392 (0.1%)	42.8%	168 (0.07%)	59.1%	3.2	00:06:16	0.00%	0(0.0%)	\$0.0 (0.0%)
10.	in.search.yahoo.com / referral	379 (0.1%)	73.6%	279 (0.1%)	61.7%	2.5	00:04:00	0.00%	0(0.0%)	\$0.0 (0.0%)

Web analytics sessions Visit based on browser from (1stApril 2017 – 31stMarch 2019) (Table 4)

Most of the visitors (nearly 75%) used Chrome, 5.71%used UC Browser, 5.6 % used Safari, 4.7% used Firefox and 1.1% used Internet explorer. A smaller percentage of visitors preferred Opera, Edge and other browsers.

Table 4: Web analytics sessions Visit based on browser from (1st April 2017 – 31st March 2019)

Browser	Sessions	% Sessions
Chrome	232872	75.8%
UC Browser	17527	5.7%
Safari	17093	5.5%
Firefox	14389	4.6%
Samsung Internet	6145	2.0%
Opera Mini	4314	1.4%
Android Webview	3727	1.2%
Internet Explorer	3235	1.0%
Edge	2885	0.9%
Opera	2734	0.8%

Table5: Web analytics of Visits on various Devices during 1st April 2017 to 31st March 2019

Device category	Acquisition			Behavior			Conversion		
	Sessions	% New Sessions	New Users	Bounce Rate	Pages / Session	Avg. Session Duration	Goal Conversion Rate	Goal Completions	Goal Value
	307017 % of Total: 100% (307017)	80.9% Avg for View: 80.8% (0.09%)	248459 % of Total: 100% (248229)	72.9% Avg for View: 72.9% (0.0%)	1.80 Avg for View: 1.8 (0.0%)	00:02:00 Avg for View: 00:02:00 (0.0%)	0.0% Avg for View: 0.00% (0.0%)	0 % of Total: 0.0% (0)	\$0.00 % of Total: 0.0% (\$0.0)
Mobile	190862(62.1%)	84.4%	161202(64.8%)	75.51%	1.6	00:01:35	0.0%	0(0.0%)	\$0.0(0.0%)
Desktop	106641(34.7%)	74.2%	79167(31.8%)	68.34%	2.0	00:02:47	0.0%	0(0.0%)	\$0.0(0.0%)
Tablet	9514(3.1%)	85.0%	8090(3.2%)	73.54%	1.6	00:01:51	0.0%	0(0.0%)	\$0.0(0.0%)

Web analytics of Visits on various Devices during 1st April 2017 to 31st March 2019 (Table 5)

According to Google Analytics data, 62.1% users visited the web portal on their mobile phones, 34.7% visited the website via desktop computers, while 3.1% visited the web portal by tablets.

Behavior:

Web analytics data of visitors according to geographic location (Table 6)

Given the unique language of the portal (English and Hindi), 91.2% visits were resident in India. In terms of regions/cities, the location of visits was seen to be more from Maharashtra, Uttar Pradesh and Delhi. Some states like Uttarakhand, Sikkim, Tripura and Meghalaya had a low utilization of the website.

Table 6: Web analytics data of visitors according to geographic location

State/UT Name	Visitors (%)
Andhra Pradesh	3.5
Assam	1.01
Bihar	4.75
Chhattisgarh	0.3
Goa	0.06
Gujarat	3.83
Haryana	2.24
Himachal Pradesh	0.56
Jammu & Kashmir	0.4
Jharkhand	0.22
Karnataka	5.34
Kerala	1.93
Madhya Pradesh	6.44
Maharashtra	13.69
Manipur	0.19
Meghalaya	0.08
Orissa	1.04
Punjab	3.01
Rajasthan	5.31
Tamil Nadu	4.78
Telangana	0.04
Tripura	0.04
Uttar Pradesh	13.8
Uttarakhand	0.42
West Bengal	3.58
Union Territory	6.11

Table 7: Top Page views based on Page URL

Sr. No	Page URL	Page views	Unique Page Views
1	/Statistics/	65920(11.9%)	55626(13.0%)
2	/financial-aid-and-resources/	38067(6.8%)	30919(7.2%)
3	Home Page	36563(6.6%)	24553(5.7%)
4	/hindi/financial-aid/	36453(6.5%)	24836(5.8%)
5	/hindi/gall-bladder-cancer/	23596(4.2%)	16140(3.7%)
6	/hindi/prostate-cancer/	23271(4.2%)	17917(4.1%)
7	/cancer-statistics/	21722(3.9%)	17617(4.1%)
8	/hindi/cervical-cancer/	15623(2.8%)	12560(2.9%)
9	/common-cancers/	14442(2.6%)	9337(2.1%)

Top Page views based on Page URL (Table 7)

The content preferences of the website were counted according to top page views. Not surprisingly, /statistics/page URL and the /financial aid/ page URL are among the top pages viewed by the users.

2 Results of Environmental scan of the websites:

Gap analysis performed through conducting an environmental scan of various existing websites providing information on cancer revealed the following messages:

- Available Indian websites offer limited and disorganized cancer prevention information.
- In Indian cancer websites, the information is written usually at an advanced literacy level.
- Exhaustive information on cancer topics usually results in disorganized look.
- The engagement strategies vary widely across international cancer websites.
- There are limited resources to engage families and communities in cancer prevention communication.

Salient features of ‘India Against Cancer’ website:

This is the sole India specific portal designed to provide comprehensive evidence-based information on prevalent cancers in the country, along with a focus on the prevention, diagnosis and treatment. It also provides information on the financial help available under national and state level schemes. The content on each cancer is written under a uniform heading and in simple English language. The website is also functional in the Hindi language which is easy to comprehend by majority of the viewers. The website has been made more attractive by adding some useful features like information on treatment centers, availability of financial aid, healthy living, diet and cancer, myths and facts on cancer and frequently asked questions. Certain specialized features have been added to the site in order to make it appealing and user-friendly like slide-shows of important cancer messages, cancer blogs, link to PDQs etc. A quiz has been included in the portal, mainly for the public to generate interest in the subject.

This website also provides some unique features like information on nearby government hospitals for treatment, financial aid and resources provided by central and state governments with their downloadable forms. Frequently asked questions are listed on the site which addresses the majority of the common queries on cancer-related issues.

The website includes some direct interactive services such as email query facility, links to social media like Facebook, Twitter and LinkedIn, to enhance engagement of the viewers.

IV. DISCUSSION

From the results obtained from the web analytics of the web portal, it is evident that the website has managed to engage its visitors by providing useful information in an interesting format that can be easily accessed. The exponential increase in the number of visitors in the second year (first year visitors: 63567 and second-year visitors: 243450) can be attributed to the fact that the website was translated into Hindi. From a technical point of view, it was observed that the website is user-friendly and can be viewed in different browsers (Chrome, UC Browser, Safari, Mozilla etc.). Comparatively higher number of visits to the website were made using mobile (62.1%). This could also be attributed to the fact that nowadays most of the people have mobile phones with access to internet and also due to the fact that the website India Against Cancer is mobile friendly. Due to easy accessibility and being user-friendly, the website has managed to get the visitors from around the globe. The portal has also attracted the international visitors which may be attributed to the relevance and the authenticity of the information and data provided on the website.

In our study, the majority of the visitors (62.2%) of the website used mobile phones whereas 34.7% visited the website via desktop computers. This finding is in contrast to the results of the study done in Canada where 82.3% (4378/5318) were desktop users, followed by 12.7% (677/5318) mobile phone.[7] Our study also showed that since ‘India Against Cancer’ website has been developed in India, majority (91.2%) of the visits were from Indian states. This is in line with the results obtained in the study done in Australia where the website had maximum visitors (98.1%) from the native country.[8] The average time spent by visitors to our site was 2 minutes per session which is in contrast to the study done in Netherland where the average session time was 5:07 minutes.[9]

Google analytics has not only helped us in quantifying the progress made by the website in the span of 2 years but has also given a direction to improve the content of the website based on the visitors’ preference.

The environmental scan helped us identify the salient features unique to ‘India Against Cancer’ web portal and gaps therein, whereas Google Analytics assisted us in quantifying the progress made by the web portal over the two years of its inception. It also guided us to find ways to improve the web portal in terms of the content, design and visitor engagement.

V. CONCLUSION

It can be concluded that the web portal has substantially served its intended purpose of reaching out to people and providing authentic information on cancer to the public over the past two years. However, there is still scope for improvement of the website to make it more user-friendly, interactive and to increase its viewership. Some of the future activities are listed below:

VI. SCOPE OF IMPROVEMENT-WAY FORWARD

- The website can add certain features such as innovative and interactive tools to target cancer prevention information to different audiences like healthcare providers seeking the latest prevention research or lay persons seeking to reduce their cancer risk. Specific, comprehensive cancer prevention information can provide concrete behavior change tips for individuals and evidence-based research for professionals. It may offer visitors the ability to create a personalized cancer prevention profile using a cancer risk calculator.
- The website may apply user-centric design techniques that help clarify the goals, target audience, and information priorities for the 'India Against Cancer' website in order to facilitate usability and visitor engagement.
- It may enhance specific and measurable engagement strategy using a few core tactics (e.g. Blog, Facebook page, and monthly e-newsletter), design elements encouraging visitors to "get involved" should include links to more information about events, volunteer opportunities and advocacy efforts.
- A mobile app may be developed for the website to disseminate the information more widely, especially among the youth who in turn can act as brand ambassadors for spreading the message of cancer prevention in the community.
- Translation of the website into regional Indian Languages can lead to its wider outreach to the population.

With these improvements, the website can be converted to a unique information tool to create cancer awareness among the community.

VII. REFERENCES

- [1] Bray, F, Ferlay, J, soerjomataram, I, siegel, R.L., torre, L.A. Global cancer statistics 2018: GLOBOCAN estimates of incidence and mortality worldwide for 36 cancers in 185 countries. *CA Cancer J Clin.* 2018;68(6): 394-424.
- [2] Bbc.com. Internet used by 32 billion people in 2015. BBC News.
- [3] Webanalyticsassociation.com. Webanalyticsassociation.com. [Online].
- [4] Booth D, Jansen BJ. A review of methodologies for analyzing websites. In *Handbook of Research on Web Log Analysis*. IGI Global. 2008. p. 143-164
- [5] Clark D, Nicholas D, Jamali HR. Evaluating information seeking and use in the changing virtual world: the emerging role of Google Analytics. *Learn Pub.* 2014;27(3):185-194.
- [6] Kirk M, Morgan R, Tonkin E, McDonald K, Skirton H. An objective approach to evaluating an internet-delivered genetics education resource developed for nurses: using Google Analytics™ to monitor global visitor engagement. *J Res Nurs.* 2012;17(6):557-579.
- [7] Song MJ, Ward J, Choi F, Nikoo M, Frank A, Shams F, Tabi K, Vigo D, Krausz M.A Process Evaluation of a Web-Based Mental Health Portal (WalkAlong) Using Google Analytics. *JMIR Ment Health* 2018;5(3):e50
- [8] Adams K, Liebrecht A, Browne J, Atkinson P. How's Your Sugar? Evaluation of a Website for Aboriginal People With Diabetes. *JMIR Diabetes* 2017;2(1):e6
- [9] Rik Crutzen, Johanna L. Roosjen, Jos Poelman, Using Google Analytics as a process evaluation method for Internet-delivered interventions: an example on sexual health, *Health Promotion International*, 2013;28(1):36-42.