

AI-DOC

Smarter Health For Your Family

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Abstract

AIDoc is an online personalized portal for your family's health needs. It's a subscription service which allows you to access curated medical information as well as on-need basis access to health professionals via a personalized portal. AIDoc creates community based support system for young families, reduces insurer costs for office visits and helps alleviate pressure on hospitals and urgent care providers by using an AI based technology platform for self-education and diagnosis.

Why AI-Doc?

Parents with kids have challenging needs with respect to healthcare and wellness. Primary care is an important healthcare need for families with infants, toddlers and kids. From the time a kid is born, parents are constantly challenged with developmental and healthcare needs. When kids are sick with routine issues such as fever, cold, rash etc, parents are often thinking if they should take the kid to a doctor or not.



Your 4 year old has cold and mild fever.



Parents

Should we take him to the doctor ?

Figure 1: Health care needs

The disadvantages of office visits are:

- Office visits are costly
- Need to wait for few days : Delayed diagnosis
- Potentially expose your child to other sick kids

These disadvantages are in constant consideration for parents of young children.

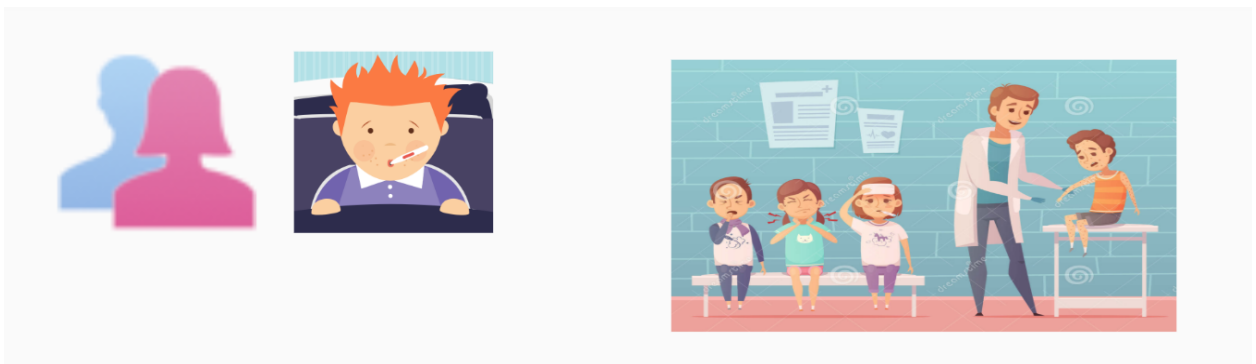


Figure 2: Health care needs, office visits

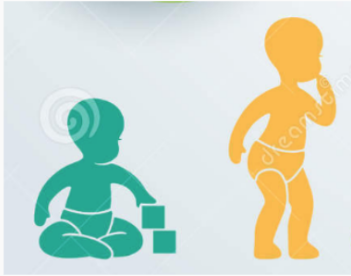
In addition, parents have a strong desire to keep track of the developmental milestones of their kids. Developmental milestones could be not only physical but also cognitive. Some of the example physical developmental milestones are: rolling over, crawling, walking etc. The cognitive developmental milestones could be : thinking, reasoning, problem-solving and understanding.

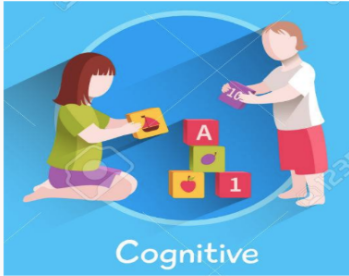
Finally, parents want to proactively research, learn and manage their kids development. For this, we use websites such as WebMD, KidsHealth etc. But the information on these websites is not personalized. The following are the disadvantages of these systems:

- It requires significant effort on the part of the user to search for the relevant information
- The information is not personalized.


These above considerations are the motivators behind AIDoc.

Developmental milestones: Physical & Cognitive






Cognitive





Parents

We want to learn & research

Figure 3: Developmental Needs



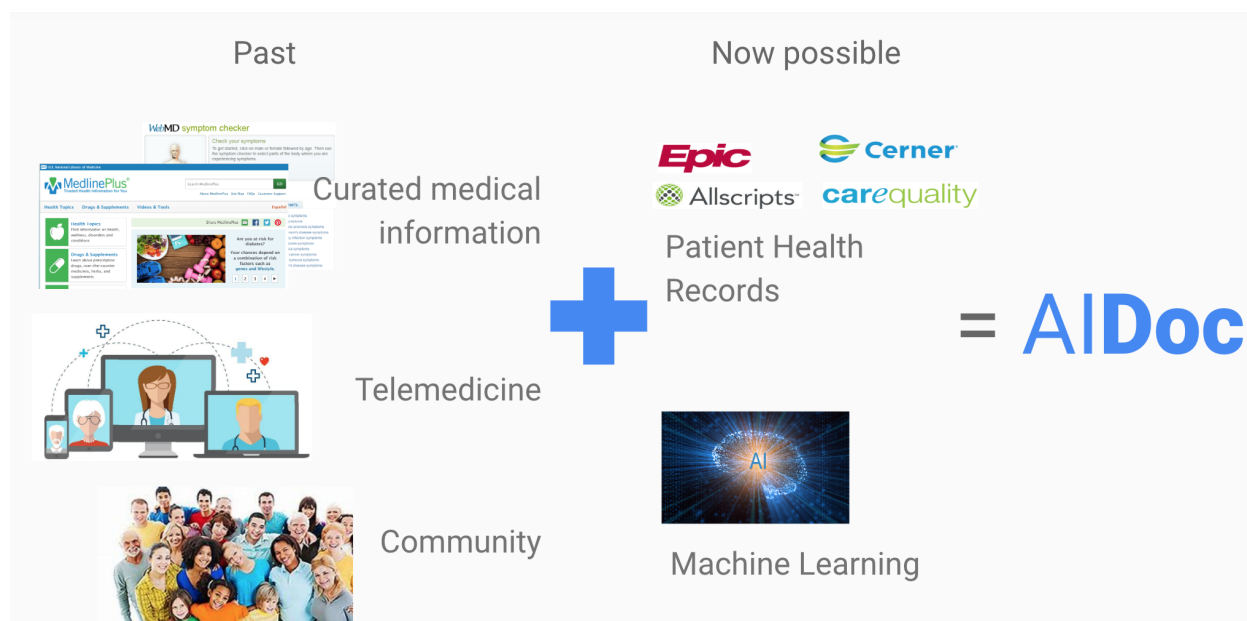




Information is not personalized

Figure 4: Challenges of learning relevant information

Vision



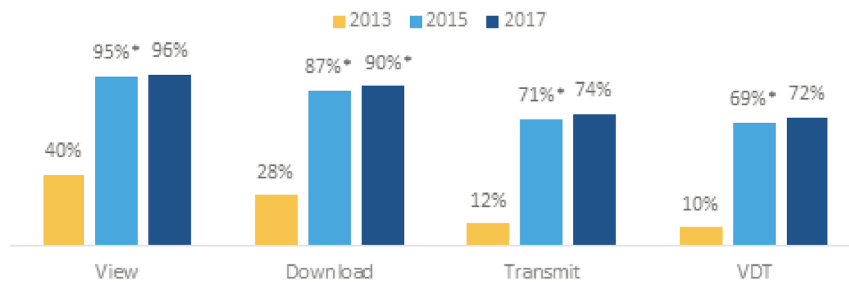
For our users, this product answers two important needs:

- Urgent questions about symptoms, conditions and if they should get treatment
- Routine health testing and screening

The AI Doc solution extends 3 proven products with newly available medical records and machine learning to dramatically improve the usefulness and accuracy of those products. Current products in this space know very little about their users, so are necessarily constrained in the accuracy of the predictions they can offer. For example, a typical symptom checker collects between 5-10 patient reported data elements on which to base their recommendations. This often leads to a list of answers which vary widely in severity and required follow up. However, recent trends have made much more information available to give better answers to these questions. A typical patient record has 100x to 1000x the information of the self reported participant surveys. Because of recent

government action, electronic health records are now becoming widely available. In the last 5 years access has increased from 40% to 95+%.

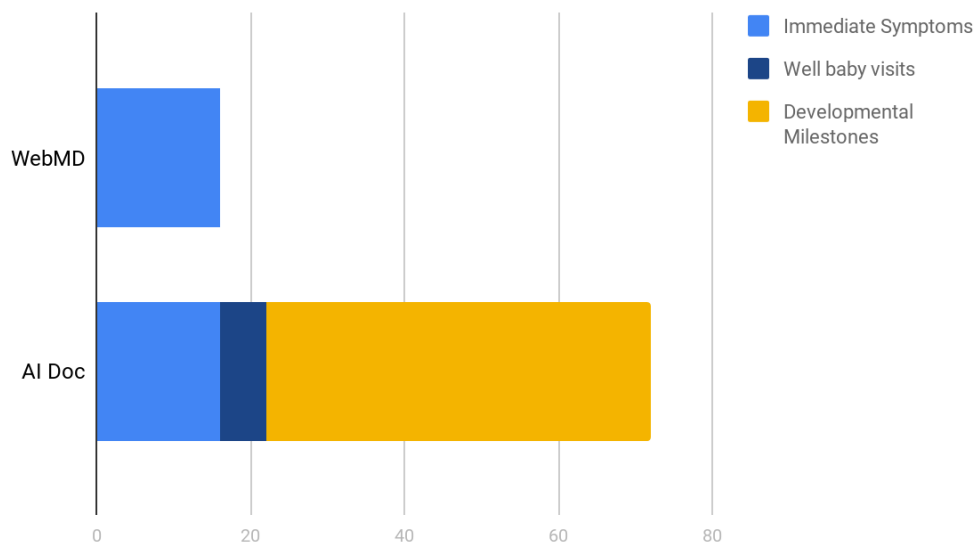
Figure 1: Percent of non-federal acute care hospitals where patients are able to electronically view, download, and transmit their health information, 2013, 2015, and 2017.



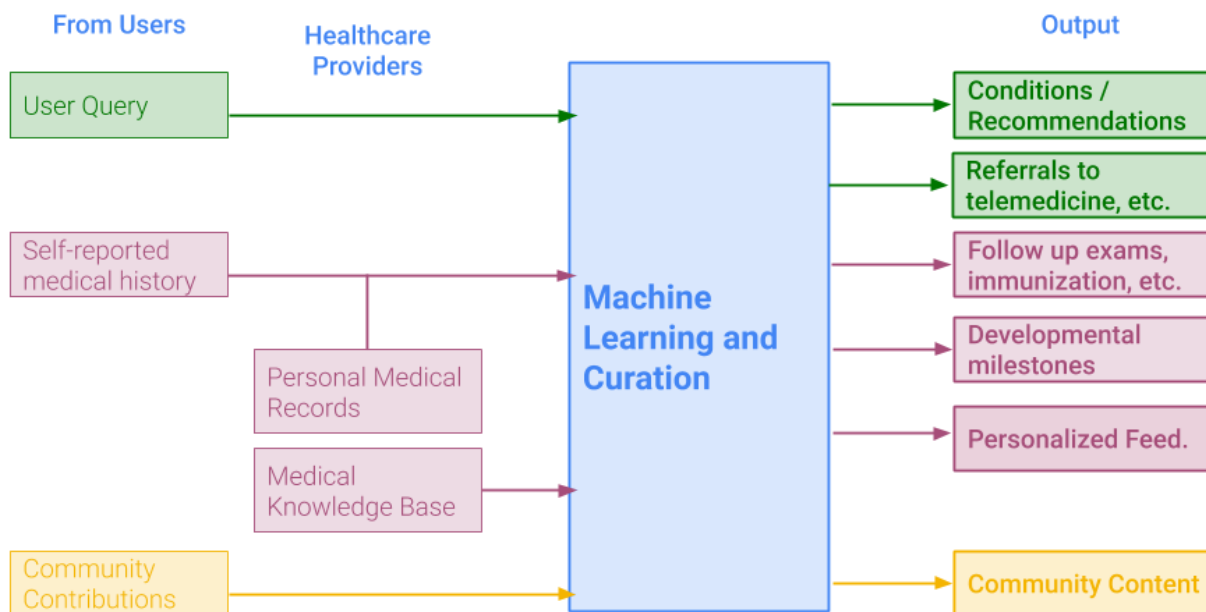
SOURCE: 2013, 2015, and 2017 American Hospital Association (AHA) Annual Survey Information Technology Supplement.

Secondly, we notice that these services' revenue are directly proportional to user traffic. The user base we picked have much higher per user usage so our revenue per user could be much higher than these services. Whereas a traditional service only answers questions once or twice a month when someone in the family is sick, by adding in routine healthcare needs and developmental milestones we can increase the per user interactions 3x to 4x.

Yearly Interactions



AIDoc Solution



In the green, we have the system which answers immediate user questions for symptoms and conditions. This takes the user's immediate needs and prior medical history to give more accurate conditions and referrals to get more advanced care. In the middle, we use the patient's medical records as inputs to the machine learning system and on the user side, we can recommend routine medical care, annual physicals and other developmental milestones. Finally we integrate with community and social components for parallel follow up.

Competitive Landscape

The competitive space related to AI Doc can be divided into 3 main categories, namely

- Medical information and knowledge provider
- Telemedicine
- AI healthcare personal assistant

There are a number of companies in each space, however, none of them addresses

customer needs more completely and comprehensively than AI Doc concept, which provides organic integration of those components to serve specific user needs like children health.

WebMD is a major player as a medical information provider thru a number of big M&A's, generating revenue as large as \$700M through advertisement, sponsorship and subscription based on their massive medical knowledge database and publications, especially targeting drug companies. Other companies in this space are targeting more specific area and customers in local community to differentiate themselves from the competitors. Their application usually offers symptom checker feature, but lacking in engaging user experience.

A number of startups developed personal healthcare assistant solution in the form of mobile app, adapting AI chatbot features to improve user experience. Examples are Medwhat, Ada, Your MD, and Babylon. Their competency is determined by AI performance, based on natural language processing capability, on how the app conducts appropriate conversations with users to extract the necessary information regarding the health status. Babylon in particular takes one step further to provide connections with doctors in case medical diagnosis and treatment are needed.

There is another category of companies specialized in providing telemedicine service based on its network with doctors. Such includes Teladoc, American Well, and MD live.

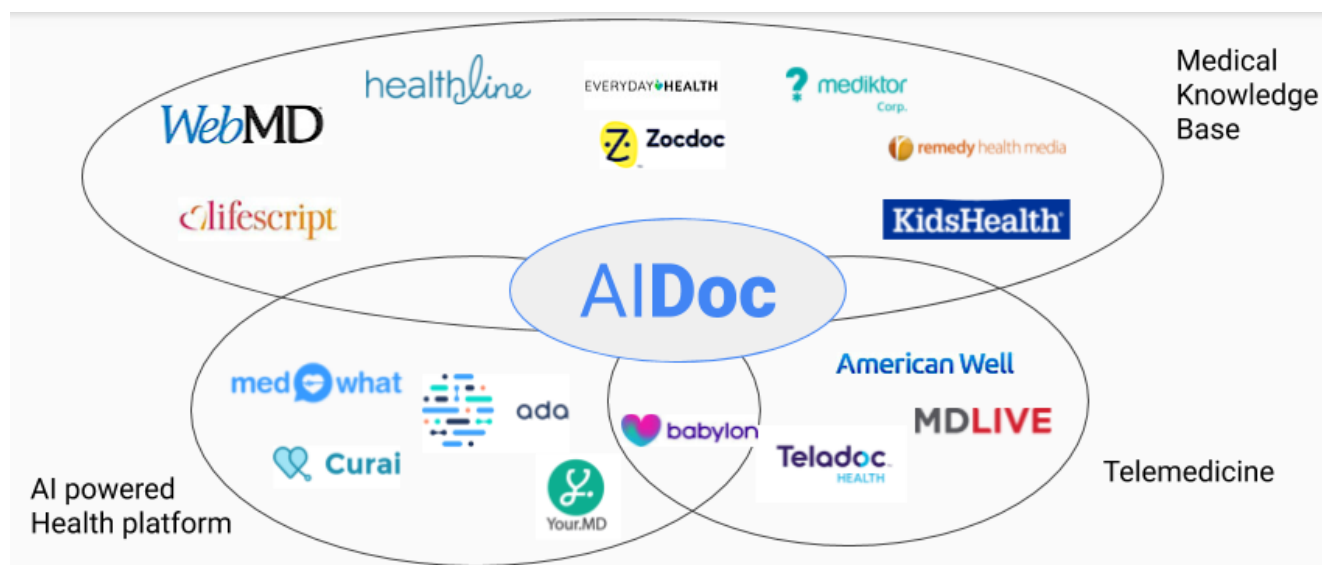


Figure : Competitive landscape

Competitive Traffic	Views/Month [*] (millions)	Revenue [**] (\$M)
WebMD	139	700
Healthline	137	97
BabyCenter	50	12
KidsHealth	13	10

Table : Performance of companies in medical information and knowledge provider area

Sources:

[*] similarweb.com

[**] Owler.com


Market Opportunity

Children health information is massively sought after as a product. Parents in US spend \$12,000 / year per child on average. There are 69M children population in US at the age of 0~15, generating a huge marketplace of \$828B each year. The children healthcare market is expected to reach USD 149300 Million by 2024 from USD 119700 Million in 2019, at a CAGR grow of roughly 3.8% over the next five years [***].

TAM is estimated to be around \$10B from the calculation, Customer LTV of \$300 x Parents Population of 34M. There is an average of 27 month difference between children per each family, meaning that it can potentially build 17~18 years of customer relationship.

[***] <https://www.marketwatch.com/press-release/pediatric-healthcare-market-2019-global-trends-market-share-industry-size-growth-opportunities-and-forecast-to-2024-2019-03-18>

Disrupting Healthcare



AI Doc innovates and disrupts healthcare market by introducing on-demand access to healthcare. The basic unit of the AIDoc business model is the annual subscription. This is \$50, and is priced to be competitive with a single teledoc call.

Go to Market & Business Model

The main channel to selling this is via direct sale online. To do this, marketing budget needs to be allocated for search advertising. This would be through typical channels such as Google Adwords and equivalent.

For this sales channel, a free month of subscription is offered to a new user. This not only allows a user to try the service risk free, but has the side benefit of potentially importing data that may be useful for community learning.

A second channel is to sell this subscription via a retail channel. To do this, the subscription is sold as a bundle along with a children's first aid/health kit. The pricing for this is \$65. This is based on a survey of online first aid kits pricing, many in the \$10-\$25 range, coupled with the price of an annual subscription.

The third element of the business model is the telemedicine link. It is advantageous for AIDoc to have a link to a teledoc should a client desire to speak to a person about a condition. The pricing for this is set at \$50. This is similar to many telemedicine services. The plan here is to partner with a telemedicine firm, and keep only a very small fraction of the charge (5%).

Financials

The following assumptions are made in the financial projections:

- Assume 2x new sub growth till year 4, when we slow to 1.5x.
- Also we assume 20% attrition YOY
- Salaries include founding team plus consultants for legal and medicine
- 10% salary / G&A growth YOY
- Marketing scales as 15% YOY

Under these assumptions, the following 5 year projections can be seen.

	Year 1	Year 2	Year 3	Year 4	Year 5
New Subscriptions Sold	1000	8000	16000	32000	48000
Care Packs Sold	250	2000	4000	8000	12000
Carryover	0	1000	8800	23040	50432
Price/Care Pack	\$65	\$65	\$65	\$65	\$65
Price/Sub	\$50	\$50	\$50	\$50	\$50
Revenues	\$66,250	\$580,000	\$1,500,000	\$3,272,000	\$5,701,600
Cost/Care Pack	15	15	15	15	15
Total Costs	\$3,750	\$30,000	\$60,000	\$120,000	\$180,000
Gross Profit	\$62,500	\$550,000	\$1,440,000	\$3,152,000	\$5,521,600

	Year 1	Year 2	Year 3	Year 4	Year 5
Gross Profit	\$62,500	\$550,000	\$1,440,000	\$3,152,000	\$5,521,600
Salaries	\$1,200,000	\$1,320,000	\$1,452,000	\$1,597,200	\$1,756,920
G&A	\$200,000	\$220,000	\$242,000	\$266,200	\$292,820
Marketing	\$125,000	\$143,750	\$165,313	\$190,109	\$218,626
Gross Margin	94.34%	94.83%	96.00%	96.33%	96.84%
Fixed Costs	\$1,525,000	\$1,683,750	\$1,859,313	\$2,053,509	\$2,268,366
Net Profit	-\$1,462,500	-\$1,133,750	-\$419,313	\$1,098,491	\$3,253,234

The year 5 data shows how well AIDoc's costs scale with number of users. This leads to solid profitability. It's also noteworthy that at 100000 subscriptions, this is only .14% of the US total kids population, so these projections are not overly aggressive.

Regulatory Compliance

To limit liability, an approach will be taken similar to that of existing, comparable companies. Such companies usually clearly express terms and conditions, for instance:

- WebMD
 - <https://www.webmd.com/about-webmd-policies/about-terms-and-conditions-of-use?ss=fr>
 - “The Site Does Not Provide Medical Advice”
 - “The use of the WebMD Site and the Content is at your own risk.”
- Teladoc
 - “Teladoc Health will use reasonable efforts to keep the content timely and accurate, but makes no guarantees, and disclaims any implied warranty or representation about its accuracy, relevance, timeliness, completeness, or appropriateness for a particular purpose.”
- Emedicinehealth.com, healthline: similar messaging

Given the more precise and specific online diagnoses provided by AIDoc, additional legal counsel for the specific messaging will be expected. These costs are folded into the budget.

For HIPAA compliance and safeguarding of patient information, particular attention will be paid to the information security of the system.

Seasoned Leadership Team

AIDoc Team



Mitch(Jungmok) Bae, PhD
Co-Founder, CTO



Eugene Sy
Sales and Marketing



Rudolf Brunner
Operations



Jay Katukuri, PhD
CEO



Jonathan Newman
Chief Product Officer



Nikhil Vora
Co-Founder, CIO

Join us

Call to Action

Be part of something revolutionary

Massive opportunity in an Industry waiting to be disrupted
Seasoned leadership team

Need,

\$2.5 million financing to cover 1.5 years

- Product launch expected in 9 months to 1 year
- Operations for 6 months to demonstrate traction