SYMPTED

Team 25

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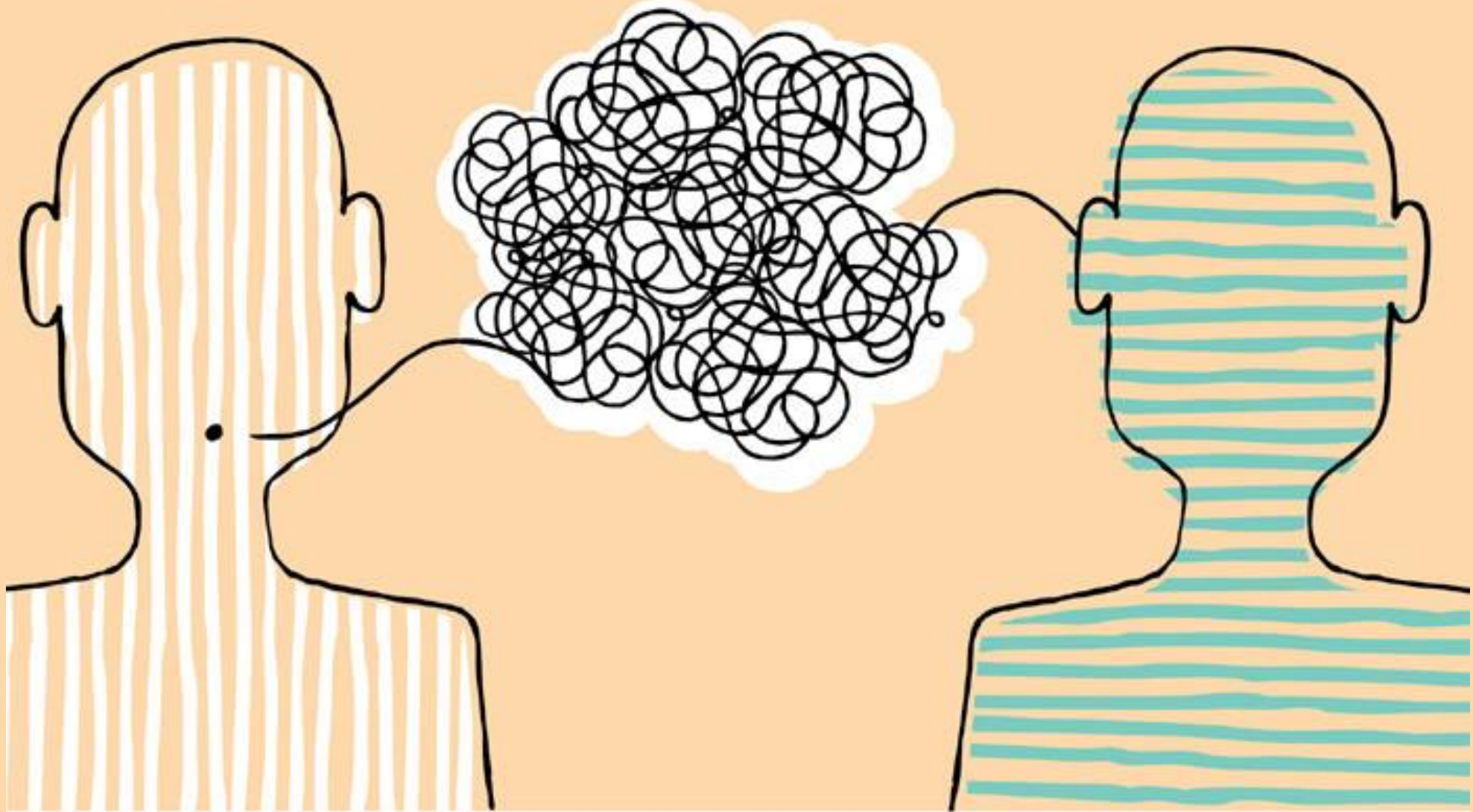
Problem
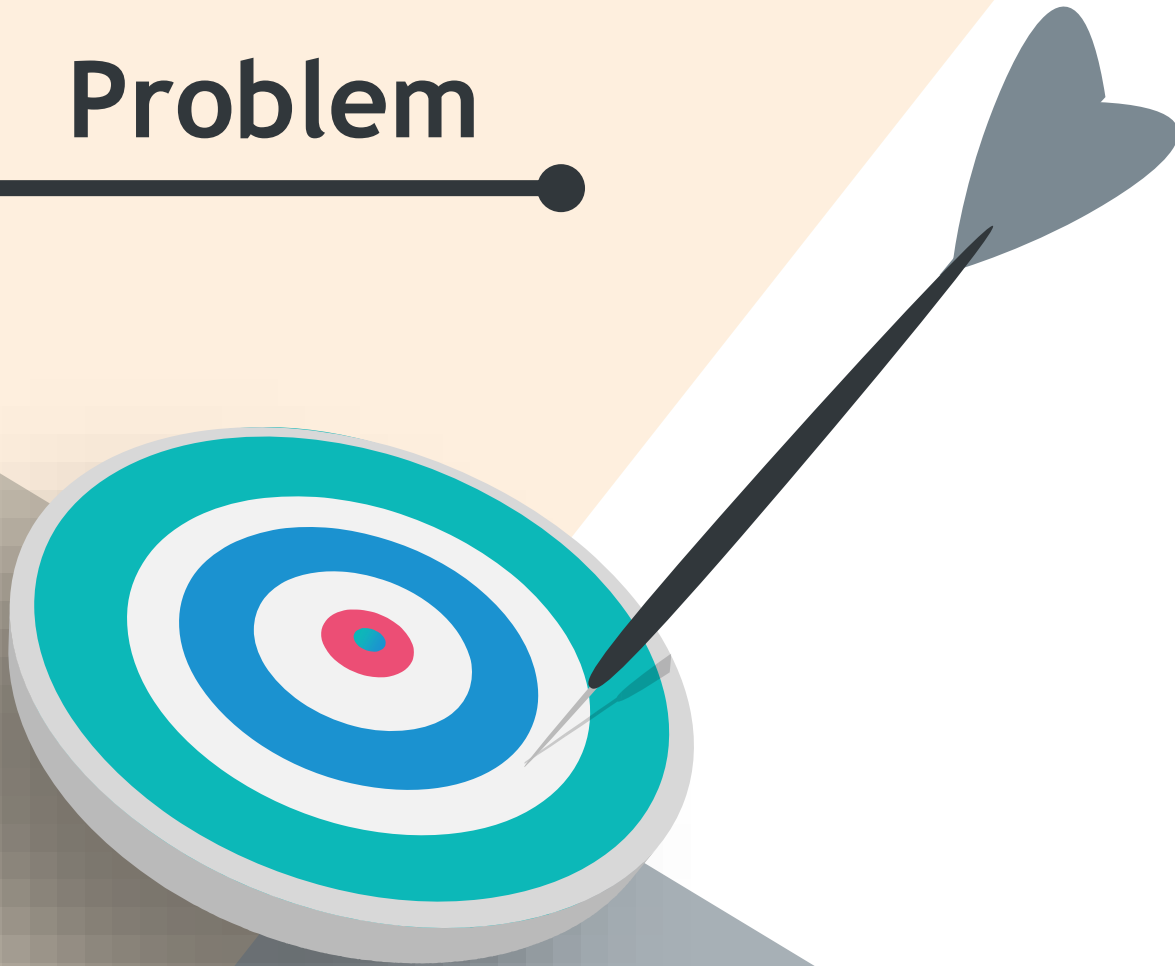
Language poses a major barrier to non-English speakers accessing healthcare

Clear and detailed communication is critical to provide appropriate healthcare

Changing Canadian demographics mean doctors can not converse with a significant number of patients

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Patient-Doctor Interaction

I have.....

Nausea
Chest Pain
Headaches

Sheila, Patient

Recently moved to Brampton from Iran

Speaks Farsi

Tell me more....

How frequent are they?
How severe is the pain?

Donna, Physician

General Practitioner in Brampton

Speaks English

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Current Alternatives

Interpreters

In person

Phone

Informal

Medically trained personnel

- ❖ *Most comprehensive*
- ❖ Expensive ($92/visit)
- ❖ Must be booked in advance
- ❖ Select languages and locations

- ❖ Accessible in less urban areas, 24/7, in wide range of languages
- ❖ Relatively inexpensive
- ❖ Physicians are uncomfortable

- ❖ **Family members :**
  - • do not know medical terminology
  - • privy to sensitive data

- ❖ **Google Translate:**
  - • suitable for simple words
  - • Significant risk of error

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Solution Criteria

Improve Quality of Healthcare Services
Give doctors more accurate and detailed information to make diagnoses

Increase Accessibility
Grow patients' confidence going to healthcare professionals

Long Term Sustainability
Generate revenue through professional sales and re-invest cash flow into improving services

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Solution : SYMPTED

PART 1

PART 2

Operation USER

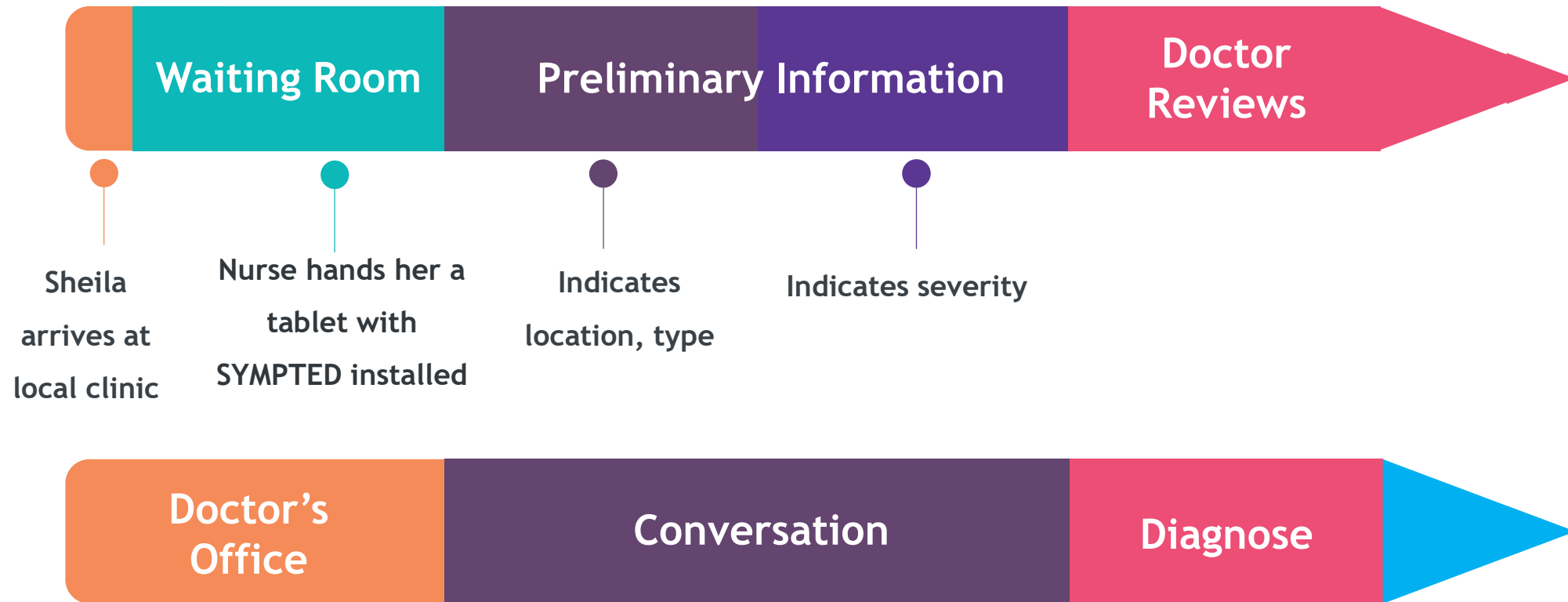Enable detailed doctor-patient conversations with the use of interactive, universal images

Operation DATA

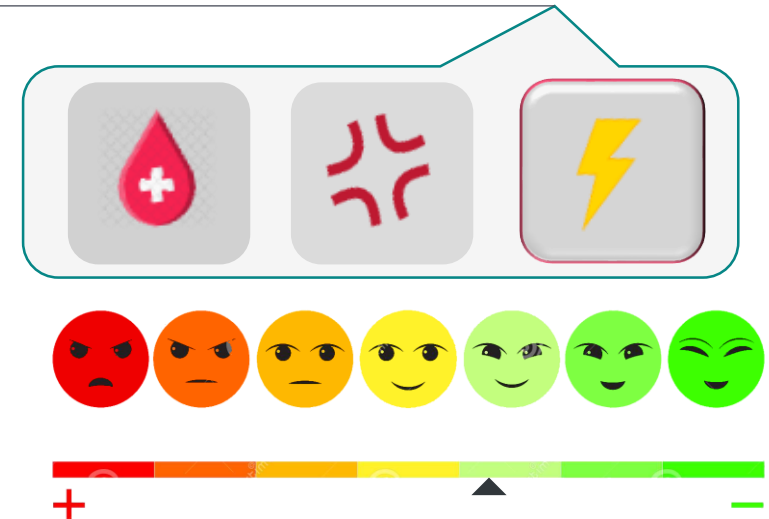Match patient-given data with doctor-given diagnosis feedback to improve future diagnoses

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Operation USER

Waiting Room | **Preliminary Information** | **Doctor Reviews**

- Sheila arrives at local clinic
- Nurse hands her a tablet with SYMPTED installed
- Indicates location, type
- Indicates severity

Doctor's Office | **Conversation** | **Diagnose**

Preliminary Information

Operation USER

Waiting Room | **Preliminary Information** | **Doctor Reviews**

Sheila arrives at local clinic

Nurse hands her a tablet with SYMPTED installed

Indicates location, type

Indicates severity

Sheila waits for Doctor to call her in

Doctor's Office | **Conversation** | **Diagnosis**

Doctor assesses symptoms and clicks prompts accordingly to ask further questions
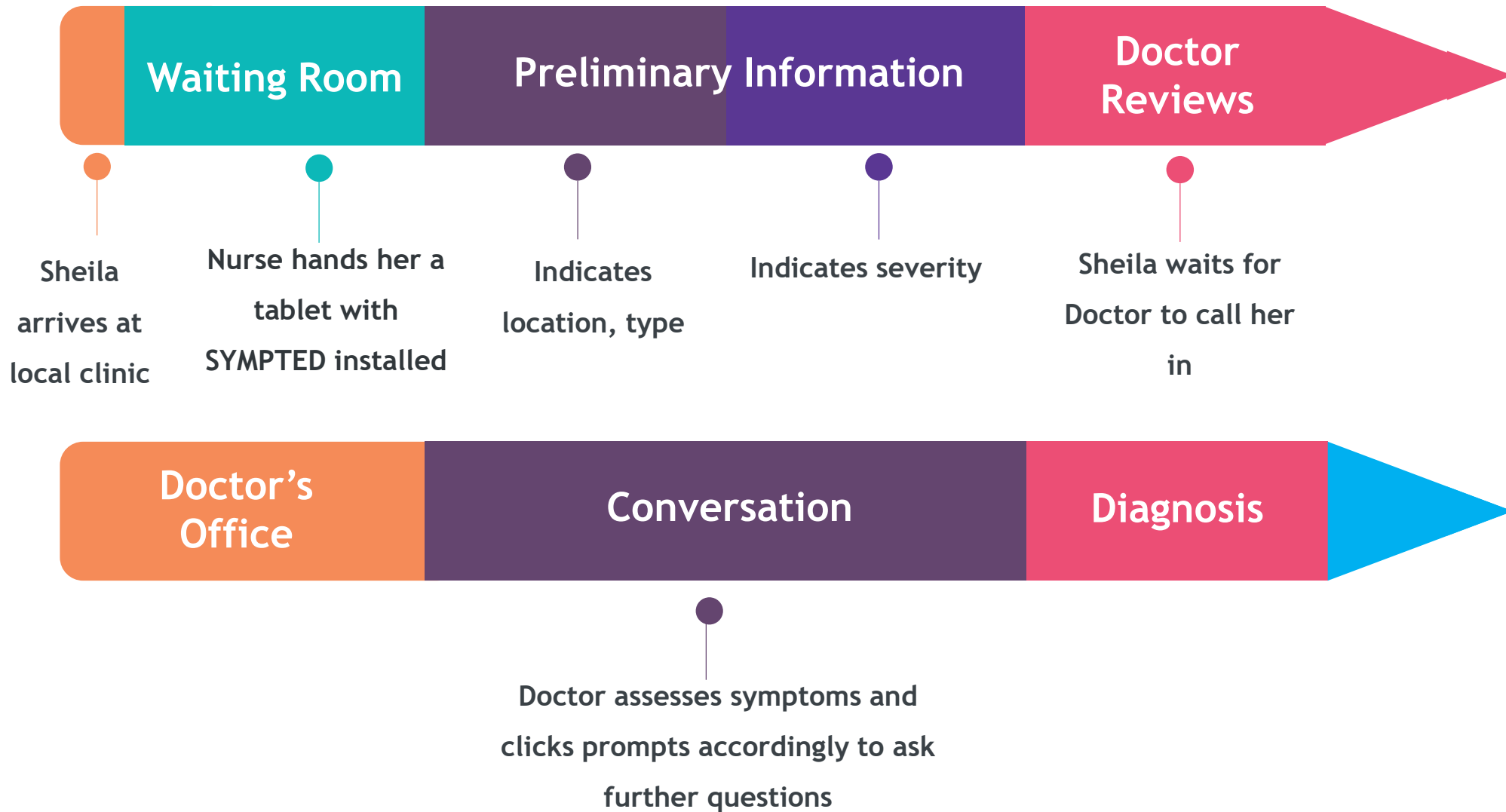
Doctor-Patient Conversation

Sore ⚡	**Neck** 🧑	**4**	😠
Irritated 💢	**Stomach**	**8**	😡

Frequency of Episodes (?)

3/17/2018 — 8/10/2018 — 10/2/2018 — 11/17/2017 — 12/26/2018 — 2/21/2019 — 2/25/2019 — 3/17/2019
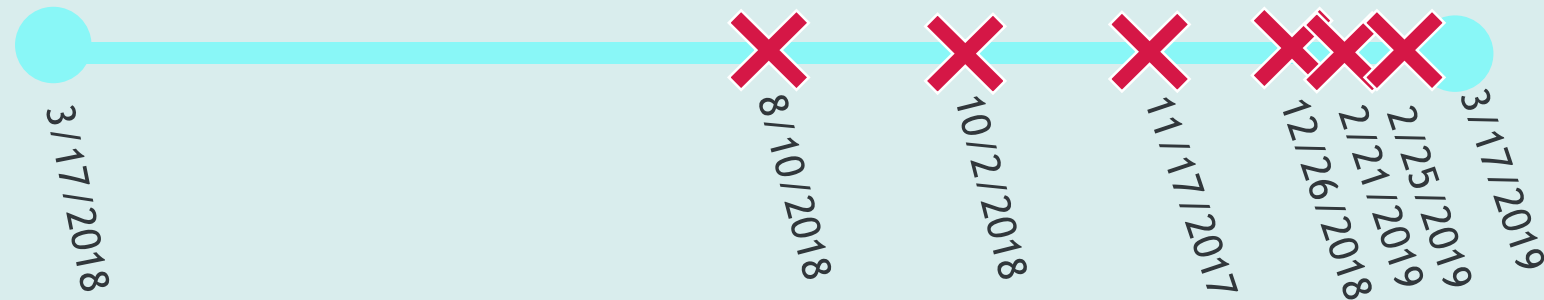
Doctor-Patient Conversation

Sore ⚡ Neck 🧑 4 🙂

Irritated 💢 Stomach 🤰 8 😡

Recent Travel?

✈️

Operation USER

Waiting Room	Preliminary Information		Doctor Reviews

Sheila arrives at local clinic

Nurse hands her a tablet with SYMPTED installed

Indicates location, type

Indicates severity

Sheila waits for Doctor to call her in

Doctor's Office	Conversation	Diagnosis	

Doctor assesses symptoms and clicks prompts accordingly to ask further questions

For complex treatments, Doctor will call on phone interpreter

Doctor Uploads Correct Diagnosis

Operation DATA

Doctor will submit approved diagnosis
Doctor can review again all symptoms patient reported during visit and their diagnosis under Doctor's Profile
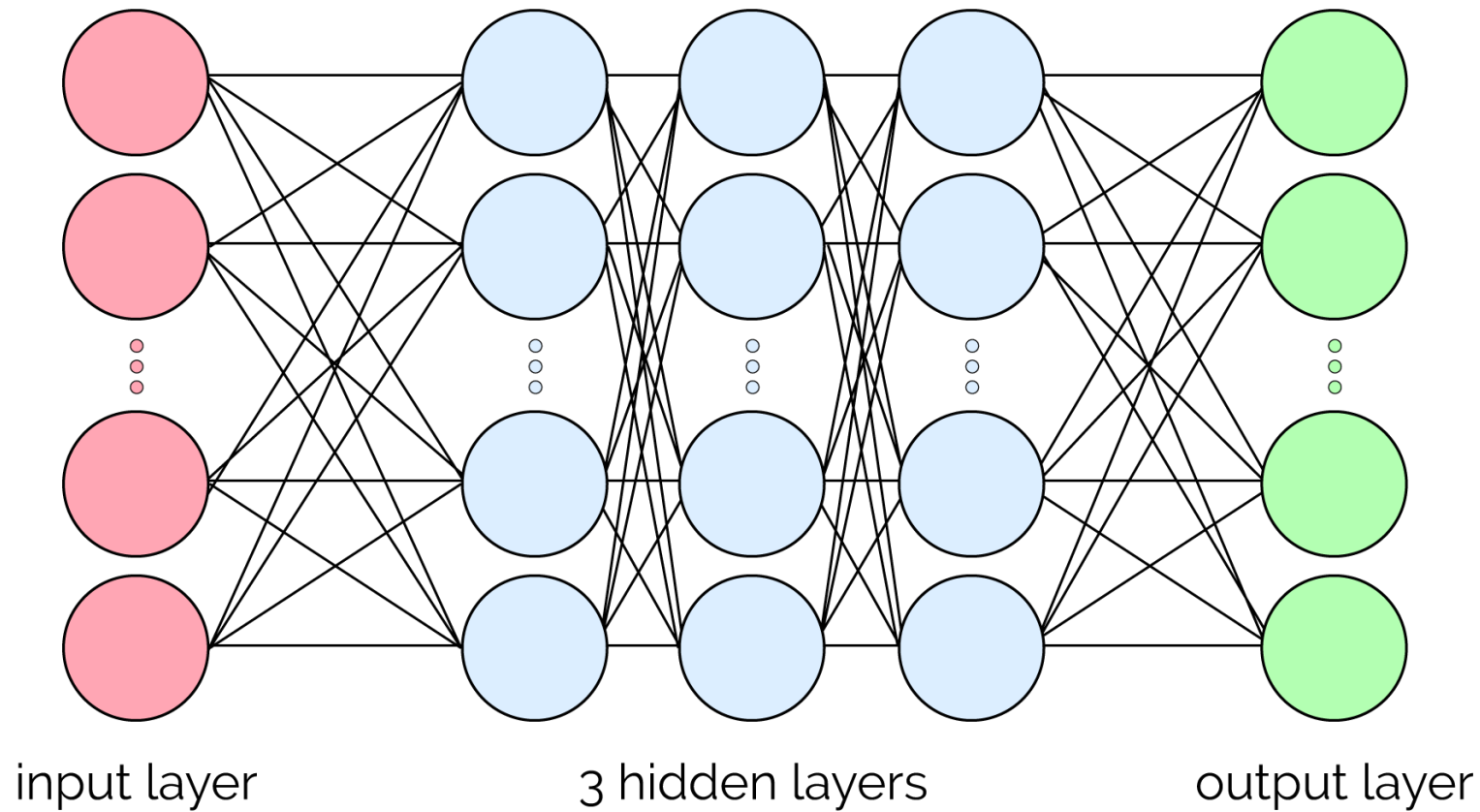
Optimize Learning
Sympted will have access to correct diagnoses along with all symptoms associated with it

What will do we do with it?
Work towards creating accurate diagnoses based on reported symptoms

Machine Learning

input layer   3 hidden layers   output layer

Use data gathered to enhance network

Toy set:

95%

Accuracy in matching symptoms to diseases

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Why Us?

True connection between patient and doctor, no intermediary required

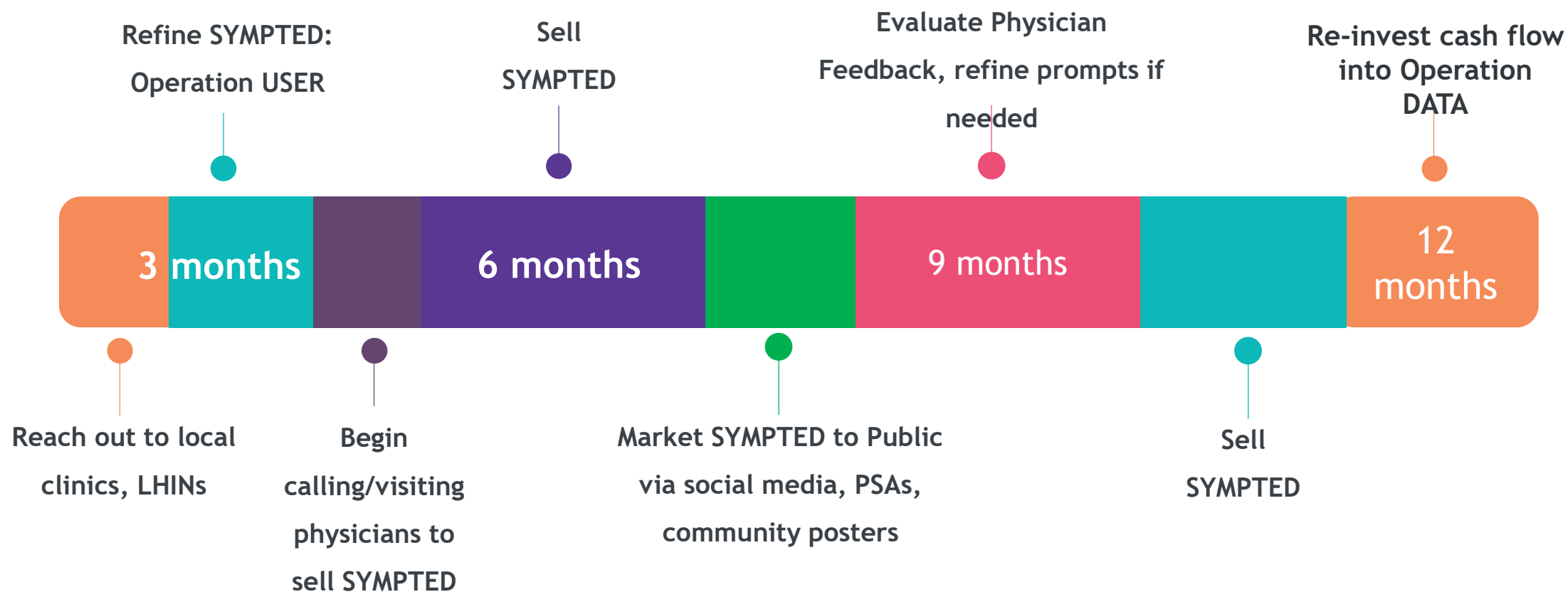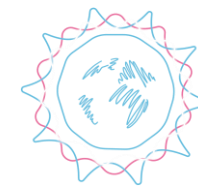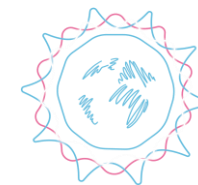Accessible anytime, anywhere, any language

How will we generate revenue?
$50/ year for GPs, $100/year for Hospitals

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Action Plan

Refine SYMPTED:
Operation USER

Sell
SYMPTED

Evaluate Physician
Feedback, refine prompts if
needed

Re-invest cash flow
into Operation
DATA

3 months | **6 months** | **9 months** | 12 months

Reach out to local
clinics, LHINs

Begin
calling/visiting
physicians to
sell SYMPTED

Market SYMPTED to Public
via social media, PSAs,
community posters

Sell
SYMPTED

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Risks & Mitigations

Strict legal rules around healthcare data

❖ Stress our mission; all money made is re-invested
❖ Speak with MPPs, Ontario health agencies
❖ Invest in Database security
❖ Partner with LHIN in GTA who have right to hold data

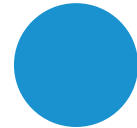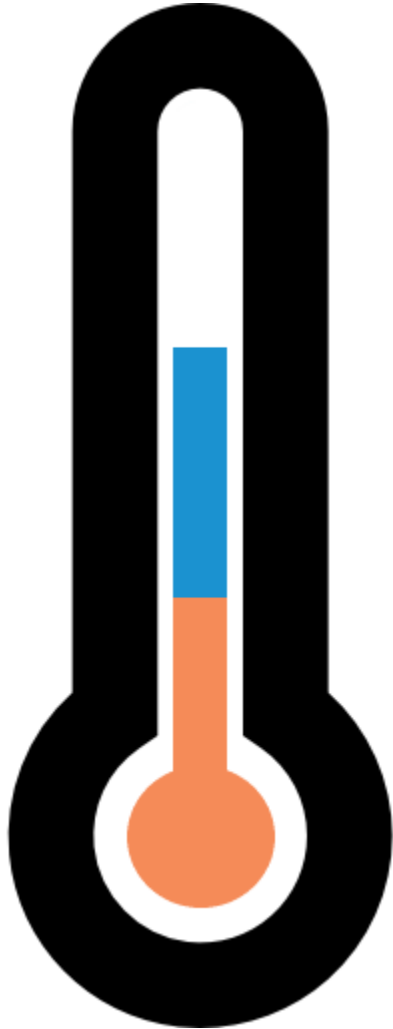### Prompts are too vague, viewed as unhelpful

❖ Work with physicians to refine prompts and user interface
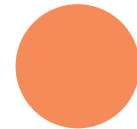
❖ Focus on specific, common symptoms

Patients are hesitant around new technology

❖ Market via informative ads and community center brochures in their home language

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Scalability

National & International Scale: After success in Ontario and then Canada, overseas in third world countries is next, in helping foreign workers give medical aid.
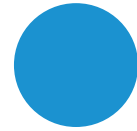
Geographic: Contact clinics in other high immigrant areas in Ontario (such as Waterloo, London).

Scalability

Continue Optimizing Diagnosis Tool: our goal is a tool that can accurately diagnose users (from anywhere) with diseases

National & International Scale: After success in Ontario and then Canada, overseas in third world countries is next, in helping foreign workers give medical aid.

Geographic: Contact clinics in other high immigrant areas in Ontario (such as Waterloo, London).
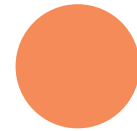
Financial Appendix

Assumptions		
Number of doctors (ON)		
# of GPs	14,747	
# of Emergency Care	373	
	15120	
Ontario Population	13,448,494	
Toronto CMA Population	5,928,040	
%	44%	
# of Doctors in GTA	6665	
Hospitals in GTA	12	
Outreach		
Year 1	0.25	1666
Adoption rate	0.2	333
Growth rate	0.1	
Period	5	
GP Price	50	
Hospital Price	100	
tax rate	0.1	
hurdle rate	0.15	

	0	1	2	3	4	5
# of doctors using this	333	367	403	444	488	537
# of hospitals adopting	0	1	2	3	4	5
GP Revenue	$ 16,662.08	$ 18,328.29	$ 20,161.12	$ 22,177.23	$ 24,394.95	$ 26,834.45
Hospital Revenue	0	100	200	300	400	$ 500.00
Total Revenues	$ 16,662.08	$ 18,428.29	$ 20,361.12	$ 22,477.23	$ 24,794.95	$ 27,334.45
Development	4000					
SG&A	4000	4000	4000	4000	4000	4000
Marketing (public service)	5000	4500	4050	3645	3280.5	2952.45
Database Security	7000	7000	7000	7000	7000	7000
Maintenance	2000	2000	2000	2000	2000	2000
Total Costs	22000	17500	17050	16645	16280.5	15952.45
EBIT	$ (5,337.92)	$ 928.29	$ 3,311.12	$ 5,832.23	$ 8,514.45	$ 11,382.00
Tax	$ (533.79)	$ 92.83	$ 331.11	$ 583.22	$ 851.45	$ 1,138.20
Net income	$ (4,804.13)	$ 835.46	$ 2,980.01	$ 5,249.01	$ 7,663.01	$ 10,243.80
*any net profits will be re-invested into the Diagnostics segment of business						
Net income / NOPAT	$ (4,804.13)	$ 835.46	$ 2,980.01	$ 5,249.01	$ 7,663.01	$ 10,243.80
FCF	$ (4,804.13)	$ 835.46	$ 2,980.01	$ 5,249.01	$ 7,663.01	$ 10,243.80
PV	$ (4,804.13)	$ 726.49	$ 2,253.31	$ 3,451.31	$ 4,381.35	$ 5,092.98
NPV	$ 11,101.31					