The Faucet

Artificial Intelligence Diagnostic for Neurological Emergencies

Faucet works

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Team
Mark Borsody, MD, PhD
Founder, CEO
Renata Barreto
VP—Regulatory
Grace Montenegro
VP—Engineering
3 computer programmers

Total Available Market
1.1 M ambulances, 250 M annual consults globally
$11.5 B USD assuming full development

Current Need
Series A raise of $4.3 M
Convertible notes agreeable

Current Valuation
$4.5 M

Next Steps
Define U.S. regulatory pathway with FDA
On-bard team full-time
Prototype Faucet AID including natural language and computer vision
Prototype performance testing

Financial Projections
Market entry 2020
Break even 2023

Professionals
McDermott, Will, & Emere LLP—corporate & IP legal

VALUE PROPOSITION

Faucetworks is developing a medical device to diagnose neurological emergencies in the ambulance, reducing brain damage and improving the patient's neurological condition while facilitating use of existing therapies and enabling use of new therapies.
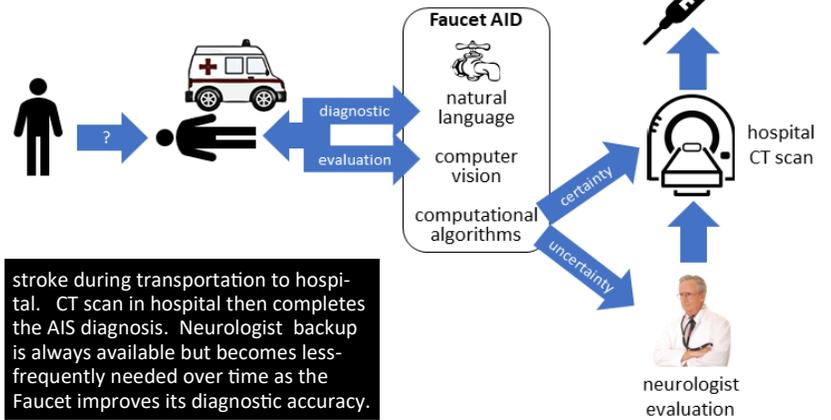
Our **Faucet™ artificial intelligence diagnostic (AID)** will be a cloud-based, semi-autonomous artificial neural network endowed with natural language and computer vision capabilities that can diagnose neurological emergencies (e.g., stroke, traumatic brain injury, etc.) by direct communication with, and examination of, the patient. Once the diagnosis is established, the Faucet AID will then direct emergency treatment measures and guide patient transport to an appropriate hospital, such as a Stroke Center or Trauma Center. Patients with uncertain diagnoses will be referred to on-call neurologists for evaluation. However, the machine learning capability of the Faucet AID will, over time, increase its diagnostic accuracy, allowing expansion of the service.

How the Faucet works. Direct patient interaction leads to diagnosis of acute stroke during transportation to hospital. CT scan in hospital then completes the AIS diagnosis. Neurologist backup is always available but becomes less-frequently needed over time as the Faucet improves its diagnostic accuracy.

How the Faucet looks. A concept picture of the Faucet's patient interface and avatar.

CLINICAL NEED

Stroke diagnosis is the initial focus of the Faucet AID because emergency treatments for certain types of stroke already exist. Stroke is the most common cause of disability and the second most common cause of death globally. In the US, nearly 800,000 cases of stroke occur each year, costing approximately $37 B in healthcare expenditures. Worldwide, there are more than 16.9 M cases of stroke annually of which 5.7 M prove fatal. Ischemic stroke, which accounts for 85% of all stroke, currently can be treated in the ambulance with the intravenous 'clot busting' medicine, tissue plasminogen activator, if only the patient diagnosis were available.
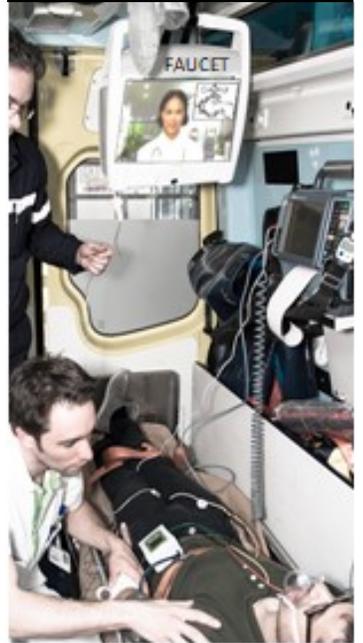
Because it is scalable, the Faucet AID can be used in any and all of the approximately 81,000 ambulances in the U.S. and 178,000 ambulances in Europe. Revenue for the Faucet AID is primarily a per patient fee for a consultation service that is comparable to a critical care-level consultation provided by a neurologist. Based on the large number of potential neurological emergencies - approximately a third of all ambulance calls - the global total available market for the Faucet AID is estimated to be $11.5 B.

How the Faucet grows. Machine learning improves Faucet diagnostic accuracy, requiring fewer referrals to on-call neurologist and allowing expansion of the service's availability.
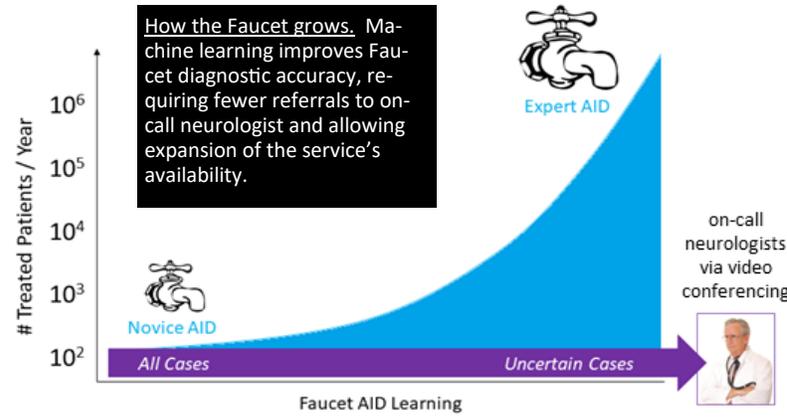
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PROJECT MANAGEMENT

Mark Borsody, MD, PhD— Founder, Chief Executive Officer: Dr. Borsody is a practicing vascular neurologist who has 13-years' executive healthcare experience including at AstraZeneca, Lundbeck, and Genentech. He has brought a pharmaceutical product successfully to market and is inventor of the VitalFlow stimulator, an ambulance-based medical device treatment for stroke and TBI in clinical development by Nervive Inc. As Founder and start-up CEO of Nervive, he raised $8.1 M in largely non-dilutive funding to take the VitalFlow into clinical testing.

Renata Barreto— VP, Regulatory: Ms. Barreto is a Jurisprudence and Social Policy Ph.D. candidate at the University of California – Berkeley School of Law whose research focus is on regulatory and legal issues surrounding the use of artificial intelligence. She is a Eugene-Cota Robles Fellowship awardee and Fellow of the American Political Science Association.

Grace Montenegro— VP, Engineering: Ms. Montenegro has 13 years' experience in product development management for major international technology and computer services companies. She is completing a Masters degree in computer and electrical engineering at Sonoma State University with a focus on hardware-software interfacing (May, 2019).

PROOF THE FAUCET WILL WORK

Faucetworks has developed an alpha prototype Faucet AID that can diagnose stroke with 91% accuracy, which compares favorably against the reported rates of agreement between two neurologists (92%). Just 16 data inputs are needed to achieve this level of performance, all of which can be obtained from the patient and/or bystanders upon arrival of the ambulance.

Faucetworks is currently developing the front-end patient interface portion of Faucet on the Microsoft Azure platform, which has excellent natural language and computer vision capabilities. Furthermore new databases for additional training of the Faucet's computational algorithms including the American Heart Association Get With The Guidelines—Stroke database will be employed to further improve its diagnostic accuracy.

INTELLECTUAL PROPERTY, OTHER PROTECTION, AND COMPETITIVE ADVANTAGE

Faucetworks has adopted a multi-part competitive strategy based on (i) first mover status, (ii) copyrights on computational algorithm codes, (iii) patents for novel means of data processing, (iv) establishing Class III regulatory barriers against potential future competitors, (v) maintenance of trade secrets related to the Faucet's computation algorithms, and (vi) strategic partnerships with complementary medical devices and therapeutics employable in the ambulance.

MARKET STRATEGY

After initial market entry as unregulated Mobile Medical Application, regulatory approval will be sought under the Expedited Access PMA pathway, providing Class III medical device protections. Clinical effectiveness and cost savings data will compel professional society mandates to incorporate the Faucet AID into all ambulances. Reimbursement will be on a per-use basis billable as a critical care-level consultation. Faucetworks expects exit by acquisition to a medical device manufacturer in the ambulance market, producer of an emergency treatment for stroke, or a healthcare telecom provider.

DEVELOPMENT PLAN

- Market entry in 2020 as a mobile medical application
- Secondary U.S. approval as Class III / PMA product with Breakthrough Device status
- Class IIb device in E.U.
- 230 patient pivotal trial
- Early exit opportunity in 2021
- Break-even in 2023

	$4.3 M Series A	$4.6 M Series B	$16.0 M Series C
	- alpha → gamma prototypes - performance testing - patent filings	- in-field training - clinical studies - first market entry - market-ready device	- pivotal study comparison against neurologist - regulatory applications - U.S. & E.U. market launches - post-market registry