

BioMed World Congress - 10 Minute Lunch Panel Comments on behalf of Advamed
Rex Widmer Speech Outline

I. Introduction

- Industry Representation – Advamed.
- Personal story of upbringing in Guyana - low-income country.
- Convergence of my passion for public service & my corporate career.
- Personal story is emblematic of a broader convergence within industry where companies – large & small – are recognizing their significant capacity & unique role in solving major public health problems.

II. Foundation Needed for MD Innovation for Low-Income Countries

4 fundamentals needed for medical devices to scale in low-income countries:

1) Principled Pragmatism – In the 21st century, low-income countries will make public health progress if all players – public, private, regulatory, & civil - apply a principled pragmatism built with rich evidence that can converge interests.

2) Partnerships – There will be zero medical device success stories in low-income countries without partnership. Partnerships will be multi-directional in data flow creating a space for co-creation of solutions.

3) Patient Capital – An obvious fundamental. Mechanisms for financing R&D with long ROI cycles are needed. Within large companies, a leader with long-term vision is needed. For small firms, seed & first stage funding for a targeted solution.

4) Promotion – There must be a consensus building process within the national, regional, and global public health community to support adoption for appropriate technologies. This is uniquely needed in low-income markets where end users, buyers, and funders are most often separate & distinct.

III. Unique Challenges & Medical Device Solutions for Low-Income Countries

Three challenges are uniquely significant in low-income countries... Medical device companies are investing to overcome some of these unique challenges:

1) The Service Challenge – Maintenance is a major hurdle to sustainable use of health technologies, particularly in rural areas of low-income countries. There are 4 approaches to this challenge being employed by medical device companies: 1) placing rugged reliability at the top of medical engineering priorities is first and foremost, 2) modular serviceability – designing the product to enable easy part replacement by a non-technician (e.g. ABI device where 90+% of service issues are resolved by clinicians themselves); 3) having relevant spare parts sold standard with the equipment, and 4) as consumer electronics repair has grown across Asia/Africa, supporting the entrepreneurship of local depots to replace a cracked screen or faulty cord for medical devices.

2) The Training Challenge – In order for latent demand to be converted into real demand in low-income countries, training on medical devices must become our “alpha & omega”. Firstly, medical paraprofessionals should be the target workforce cadre for many medical device innovations (given dearth of MDs)... Second, designing the device to have a simple user interface can shift limited training time away from instrumentation & towards clinical application of the

device (having few keys & limited options enables this). Lastly, companies in many areas of the medical device industry have formed partnerships with clinical affiliation groups who can create protocols & curriculum for distribution thru NGO & academic channels (e.g. ultrasound w/ orgs like WFUMB & ISUOG).

3) The Power Challenge – Populations in communities of low & middle-income countries lacking grid power number between 1.5-2.0 billion. There is still debate within the medical device industry whether this challenge should even be considered part of MD design scope (the energy sector's challenge). Across all device markets however – high income & low income – there is growing interest in designing low power demand devices. Combine low power demand design with the proliferation of Li-ion & MiMH batteries & you now have protracted power solutions for some portable diagnostic & stabilization devices (examples are resting ECG & O₂ concentrators). A comprehensive power solution for primary care in off-grid rural areas would still be needed however. While this will take cross-sectorial investment to fully R&D, some design firms have successfully experimented with solar-powered rechargers for battery-powered devices in rural Africa.

In Summary – While the design challenges for low-income countries are unique, the solutions are out there & medical companies are exploring the space. The 4 Ps for Foundation-Building & the 3 key design challenges I highlighted will dominate our agenda as our broad consortium seeks to make progress for medical devices in low-income countries.

IV. What Can You Do (*This is for the biomedical engineering audience*)

- If everything we've talked about today begins & ends with words, then so what.
- What can you do stepping out of this session?
- Firstly, go to a low-income country if you've never been. Witness the struggles & successes of the passionate health professionals serving in these low-resource settings. This is an absolute must. If you don't have the time, make the time.
- Second, if your organization does not have a global health program supporting low-income countries in some capacity, then start one!
- Lastly and relevant to today's forum... If you have a compelling idea already, submit it to the WHO's technology competition. This is an exciting field with real opportunity for appropriate medical devices that serve the less fortunate & save lives.