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Fall 2013

**15.232 Business Model Innovation: Global Health in
Frontier Markets**

Class 3

**Operations, Growth: Riders for
Health**

Today's plan

- Follow up from last time
 - your thoughts/reflections
 - Google Hangout with York?
 - Six more intros; my own intro
- Looking forward to your assignments
- Riders for Health
 - What's the problem?
 - Define the Riders approach
 - Does it work? Why?
 - Implications
- Coming up:
 - Avahan case; Kim, Porter & Farmer on Tuesday
 - group formation by tonight: let us know if you need help!

Riders for Health

<http://www.riders.org/>

What's the problem?

FACTOR	MEDICINE SUPPLY CHAIN	COCA-COLA SUPPLY CHAIN
Production	<ul style="list-style-type: none"> • Production occurs mostly internationally. • Capital intensive and highly skilled production process. • Production is strictly regulated by national and international agencies. • Large economies of scale. 	<ul style="list-style-type: none"> • Production of Coca-Cola concentrate occurs internationally. • Bottling is less capital and skill intensive. • Bottling carried out locally in each market.
Information Gathering	<ul style="list-style-type: none"> • Lack of systematic information collection tools. • Expensive one-off monitoring and data collection. • Central, assumption-based supply chain planning. 	<ul style="list-style-type: none"> • Systematic information collection tools. • Innovative methods of data collection using third parties and own sales force. • Data-driven supply chain planning.
Distribution	<ul style="list-style-type: none"> • Product-specific distribution asset investments (both human and capital assets). • Higher need for traceability and security. • Limited competition in the distribution segment. • Poor contract compliance on attributes such as service level, and delivery lead time. 	<ul style="list-style-type: none"> • Generic distribution asset investments. • Competition used to achieve higher contract compliance. • Horizontal collaboration. • Higher frequency of delivery to retail points of sale.
Retail Point of Sale	<ul style="list-style-type: none"> • Limited to regulated pharmacies or government-run clinics. • Limited innovation on new points of sales due to regulation. 	<ul style="list-style-type: none"> • Variety of retail sales points such as restaurants, bars, or supermarkets, in cities, towns, and smaller retail kiosks in rural areas. • Constantly innovating to create new points of sale.
Incentive Structures	<ul style="list-style-type: none"> • Limited ability to create incentives for actors in publicly run distribution systems. • Simple single-party contracts. 	<ul style="list-style-type: none"> • Incentive alignment through contracting given due importance. • Sales incentives, service-level incentives commonly used in both pricing and employment contracts.
Consumption Benefits	<ul style="list-style-type: none"> • The consumption of some medicines, vaccines, and other health products results in higher benefits to society as a whole and not necessarily to individuals. • Medicines are what people “need.” 	<ul style="list-style-type: none"> • The benefits from consumption of consumer products and soft drinks accrue primarily to the end consumer. In fact, society may sometimes bear a cost from their consumption. • Soft drinks are what people “want.”

Stanford Social Innovation Review, Winter 2013.
 From “Learning from Coca-Cola” by Prashant Yadav, Orla Stapleton, and
 Luk Van Wassenhove www.ssireview.org. Used with permission.

Infrastructure is a rate-limiting constraint

- The majority of Africa's rural populations do not live within reach of all-season roads and cannot participate in meaningful entrepreneurial activities.
 - In Kenya: about 32% of the rural people live within two kilometers of an all-weather road.
 - 31% for Angola, 26% for Malawi, 24% for Tanzania, 18% for Mali, 10.5% for Ethiopia.
- Africa will need to invest nearly \$93 billion per year over the next decade to bridge the deficit in its infrastructure. Some estimates put the needed budget for Nigeria alone at \$15 billion per year. South Africa plans a long-term infrastructure strategy to be implemented over the next 15 years at a cost of \$462 billion (Juma guest column in Forbes, 25 Oct 2012)
- The African Development Bank estimates an economic output shortfall of 40% across the continent due to lack of infrastructure (Economist 21 Jul 2011)

Logistics performance varies widely

The World Bank's Logistics Performance Index is based on a worldwide survey of operators on the ground (global freight forwarders and express carriers), providing feedback on the logistics "friendliness" of the countries in which they operate and those with which they trade. They combine in-depth knowledge of the countries in which they operate with informed qualitative assessments of other countries with which they trade, and experience of global logistics environment.

Feedback from operators is supplemented with quantitative data on the performance of key components of the logistics chain in the country of work, data collected for nearly 130 countries

Table 1.1 Top 10 logistics performers 2010

Economy	2010 LPI		
	LPI rank	LPI score	% of highest performer
Germany	1	4.11	100.0
Singapore	2	4.09	99.2
Sweden	3	4.08	98.8
Netherlands	4	4.07	98.5
Luxembourg	5	3.98	95.7
Switzerland	6	3.97	95.5
Japan	7	3.97	95.2
United Kingdom	8	3.95	94.9
Belgium	9	3.94	94.5
Norway	10	3.93	94.2

Source: Logistics Performance Index, 2007 and 2010.

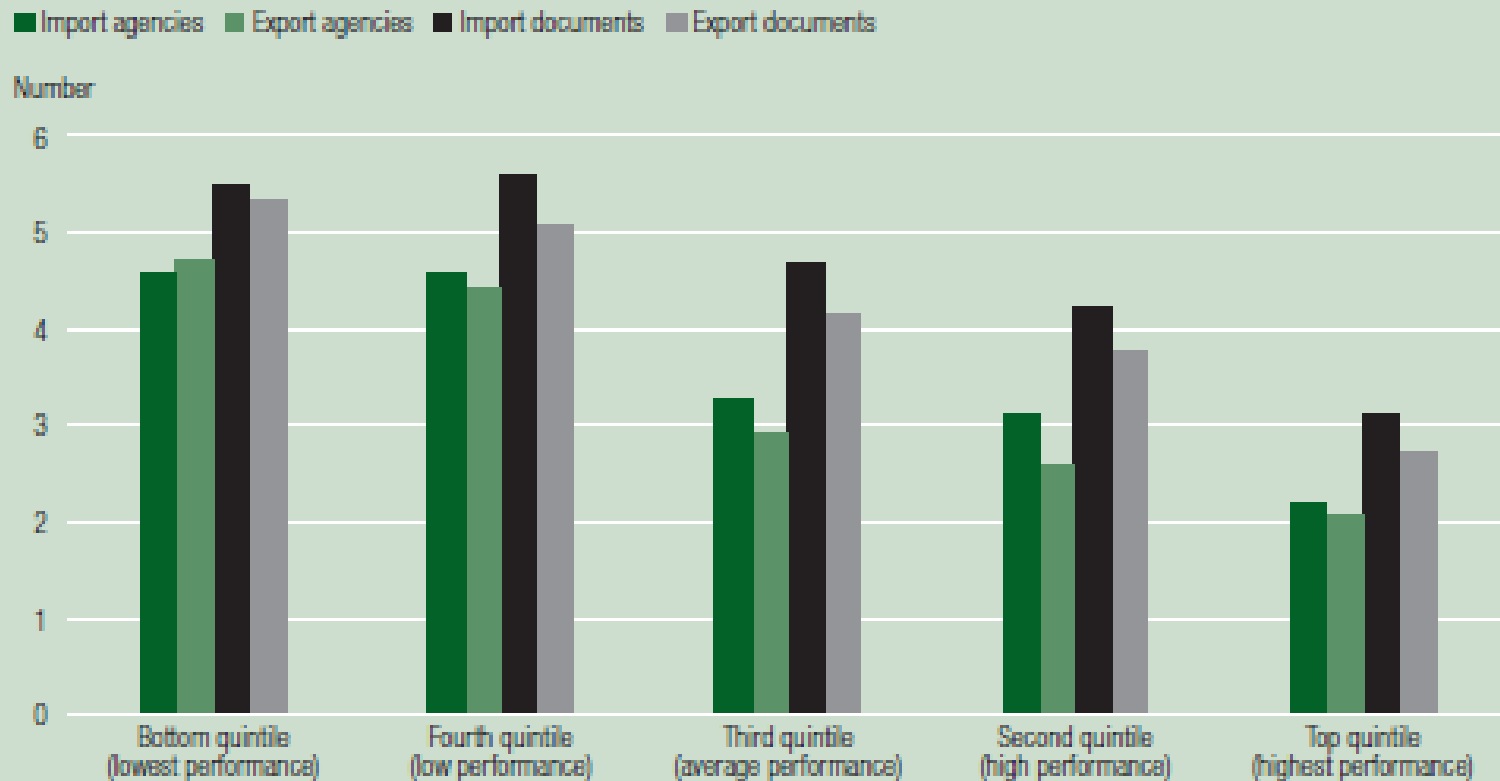
Table 1.2 Bottom 10 logistics performers 2010

Economy	2010 LPI		
	LPI rank	LPI score	% of highest performer
Somalia	155	1.34	10.9
Eritrea	154	1.70	22.4
Sierra Leone	153	1.97	31.2
Namibia	152	2.02	32.8
Rwanda	151	2.04	33.4
Cuba	150	2.07	34.3
Guinea-Bissau	149	2.10	35.4
Iraq	148	2.11	35.5
Nepal	147	2.20	38.6
Sudan	146	2.21	38.7

Source: Logistics Performance Index, 2007 and 2010.

Arvis, J. F., et al. "Connecting to Compete 2010: Trade Logistics in the Global Economy. The Logistics Performance Index and Its Indicators." The World Bank, 2010. The World Bank authorizes the use of this material subject to the terms and conditions on its website, <http://www.worldbank.org/terms>.

Figure 2.4 Red tape affecting import and export transactions, by LPI quintile



Source: Logistics performance survey data, 2009.

Arvis, J. F., et al. "Connecting to Compete 2010: Trade Logistics in the Global Economy. The Logistics Performance Index and Its Indicators." The World Bank, 2010. The World Bank authorizes the use of this material subject to the terms and conditions on its website, <http://www.worldbank.org/terms>.

Table 2.5**Respondents indicating that they often or nearly always experience delay factors, by LPI quintile**

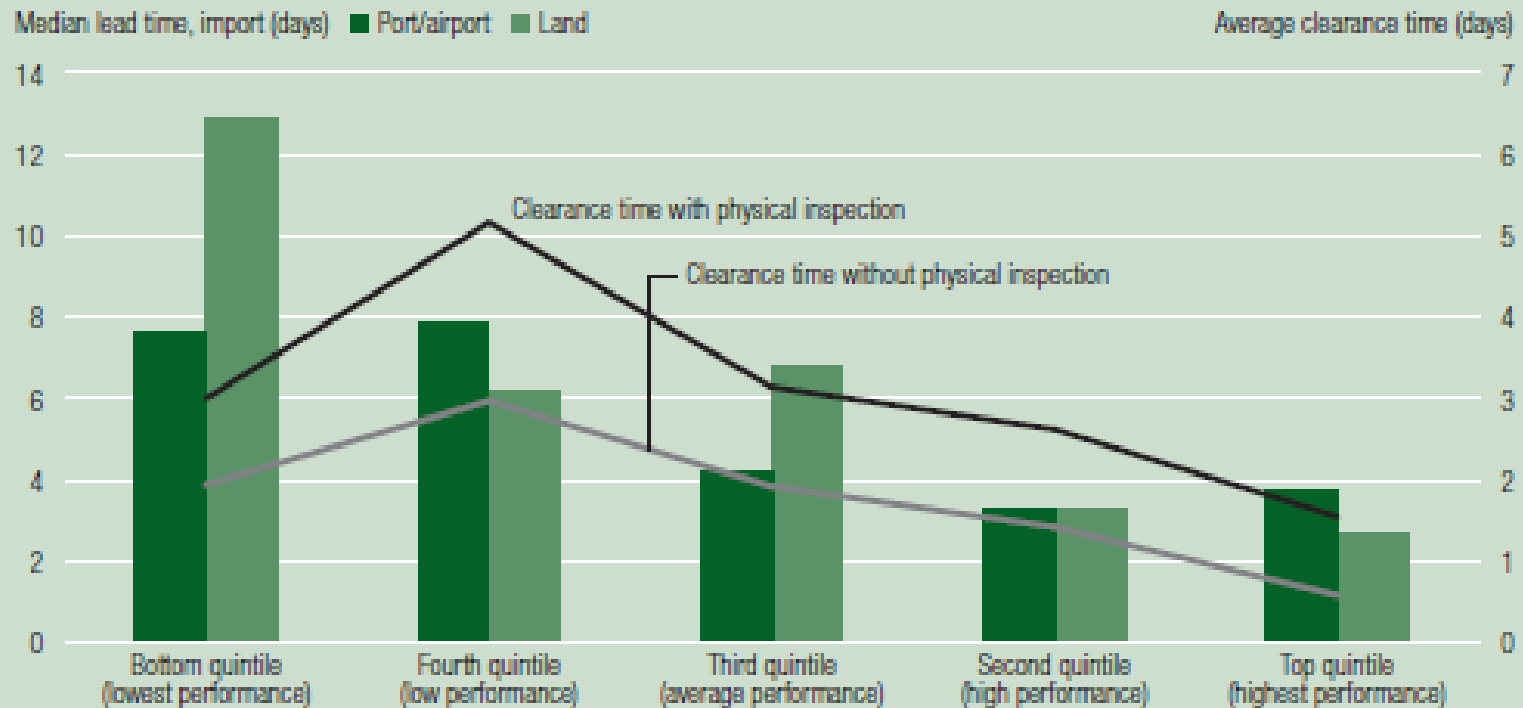
Percent of respondents

	Major delays from compulsory warehousing	Major delays from preshipment inspection	Major delays from maritime transshipment	Theft	Informal payments
Bottom quintile (lowest performance)	39	34	30	18	36
Fourth quintile (low performance)	32	23	29	19	38
Third quintile (average performance)	32	25	24	13	33
Second quintile (high performance)	21	28	22	9	18
Top quintile (highest performance)	2	6	4	2	3

Source: Logistics performance survey data, 2009.

Arvis, J. F., et al. "Connecting to Compete 2010: Trade Logistics in the Global Economy. The Logistics Performance Index and Its Indicators." The World Bank, 2010. The World Bank authorizes the use of this material subject to the terms and conditions on its website, <http://www.worldbank.org/terms>.

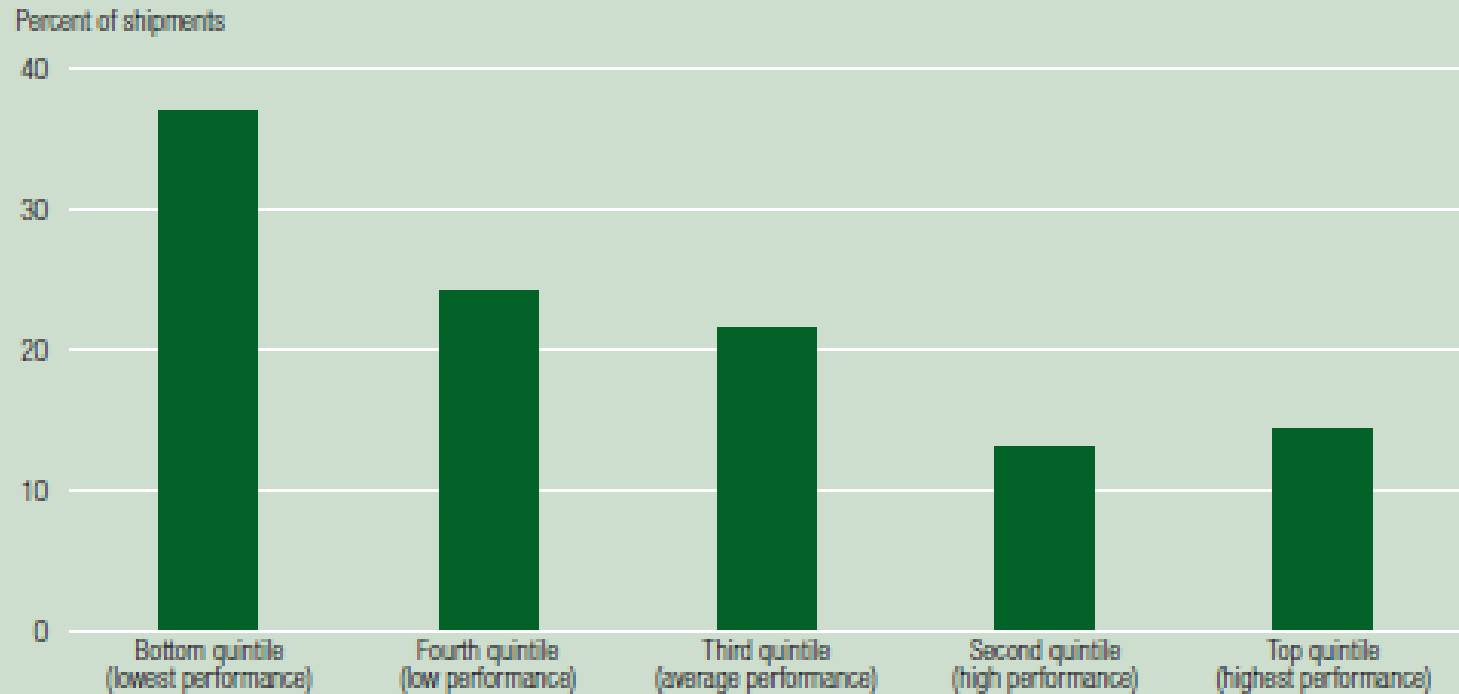
Figure 2.2 Median import lead time and average clearance time, by LPI quintile



Source: Logistics performance survey data, 2009.

Arvis, J. F., et al. "Connecting to Compete 2010: Trade Logistics in the Global Economy. The Logistics Performance Index and Its Indicators." The World Bank, 2010. The World Bank authorizes the use of this material subject to the terms and conditions on its website, <http://www.worldbank.org/terms>.

Figure 2.9 Shipments not meeting company quality criteria, by LPI quintile



Source: Logistics performance survey data, 2009.

Arvis, J. F., et al. "Connecting to Compete 2010: Trade Logistics in the Global Economy. The Logistics Performance Index and Its Indicators." The World Bank, 2010. The World Bank authorizes the use of this material subject to the terms and conditions on its website, <http://www.worldbank.org/terms>.

What's the problem?

What is Riders' solution?

What role do these play?



Image is in the public domain.

Map removed due to copyright restrictions. See [Riders for Health, Where We Work](#).

Figure removed due to copyright restrictions. See p. 3, "OC&C Due Diligence Report on Riders' Operations in Africa." c. 2007. Accessed via Internet Archives. <https://web.archive.org/web/20071219121310/https://www.riders.org/downloads/OC&C%20report.pdf>.

Figure removed due to copyright restrictions. See p. 5, "OC&C Due Diligence Report on Riders' Operations in Africa." c. 2007. Accessed via Internet Archives. <https://web.archive.org/web/20071219121310/https://www.riders.org/downloads/OC&C%20report.pdf>.

Current programs

- Fleet management
- Emergency referrals
- Mobilising health workers
- Sample transport
- Supply chain distribution
- Training



Source: Riders for Health.

IMPROVED ACCESS TO
HEALTH CARE FOR
12 MILLION
PEOPLE ACROSS AFRICA

Riders has improved health care access for 12 million people across Africa. We do this by ensuring health workers and health facilities have access to reliable vehicles to carry out their work effectively, so that communities across Africa receive regular, reliable health care.

A MOBILISED OUTREACH
HEALTH WORKER
CAN SEE NEARLY
6 TIMES
MORE PEOPLE

This means they can monitor disease burdens effectively and ensure that more communities know about prevention and control. They can also offer an important link between rural communities and a health facility when necessary.

MOBILISED OUTREACH
HEALTH WORKERS
CAN DOUBLE THE
TIME THEY SPEND IN
COMMUNITIES

With reliable transport, health workers spend less time travelling between communities and longer with their patients doing the job that they were trained to do.

2.9 MILLION
EXTRA PEOPLE
INTERACT WITH HEALTH
PROFESSIONALS EACH YEAR

Health workers mobilised with reliable vehicles can travel further to reach more rural communities with health care. They can also offer an important link for referring rural communities to a health facility when they need it.

3,500 EXTRA
HEALTH
EDUCATION
MEETINGS EVERY MONTH

With reliable transport, outreach health workers can hold more health education meetings in communities across Africa. Sharing information on disease control and prevention means that people will understand how to prevent themselves and their children from getting ill. They will also recognise symptoms so that they know when to seek treatment.

3 TIMES
MORE PATIENTS REFERRED
TO HOSPITALS BY
AMBULANCES

In 2011 in the Gambia, three times more patients were referred from health centres to hospitals by Riders-managed ambulances. Ambulance referrals not only mean quicker and safer transportation but they also mean better quality of care in transit as a nurse will accompany the patient.

Source: Riders for Health.

Riders for Health has just won the Third Sector Social Enterprise Award for its new Transportation Asset Management project, a health delivery initiative in Gambia created in partnership with the Skoll Foundation, Gambian Department of State for Health and GT Bank. A Clinton Global Initiative commitment in 2007, which included a \$3.5 million loan guarantee from Skoll, the TAM project integrates vehicle purchase, leasing & maintenance with health delivery. With 153 vehicles purchased and operational in country (out of a total planned fleet of 240), the TAM project is already letting the Department of State for Health reach 1.1 million of the 1.7 million citizens of Gambia.

Lowry, Bruce. "[Riders for Health Wins Social Enterprise Award](#)." September 28, 2009. *Skol Online* (blog). Accessed via Internet Archives.

for more on the Gambia model, see

Rammohan, Sonali. 2010. Fueling Growth.

Stanford Social Innovation Review. Summer.

http://www.ssireview.org/articles/entry/fueling_growth/

Riders for Health had won international acclaim for its novel approach to maintaining health transport vehicles in sub-Saharan Africa. Yet the organization was having trouble scaling its services at its first site: Gambia. Here is how the organization won both government support and private funding for its latest innovation.

What about this?

Photo of Uhuru motorcycle-sidecar ambulance developed by Riders for Health removed due to copyright restrictions.
See p 7, [OC&C Due Diligence Report on Riders' Operations in Africa](#). OC&C Strategy Consultants, 2005.

more about Riders

see my three detailed posts

- the [first explains the model](#);
- the [second adds more resources and discussion](#); and
- here's [the most recent](#).

Visit <http://www.riders.org/research> where downloads include

- [Connecting the Dots: A Pilot Program to Link Laboratory Services to Patients in a Rural Zambia Province](#), *Alliance for Case Studies for Global Health*, 2012.

(not used)

- Much of the laboratory and medical equipment in resource-poor settings is out-of-service. The most commonly cited reasons are (1) a lack of spare parts and (2) a lack of highly trained technicians. However, there is little data to support these hypotheses, or to generate evidence-based solutions to the problem. We studied 2,849 equipment-repair requests (of which 2,529 were out-of-service medical equipment) from 60 resource-poor hospitals located in 11 nations in Africa, Europe, Asia, and Central America. Each piece of equipment was analyzed by an engineer or an engineering student and a repair was attempted using only locally available materials. If the piece was placed back into service, we assumed that the engineer's problem analysis was correct. A total of 1,821 pieces of medical equipment were placed back into service, or 72%, without requiring the use of imported spare parts. Of those pieces repaired, 1,704 were sufficiently documented to determine what knowledge was required to place the equipment back into service. We found that six domains of knowledge were required to accomplish 99% of the repairs: electrical (18%), mechanical (18%), power supply (14%), plumbing (19%), motors (5%), and installation or user training (25%). A further analysis of the domains shows that 66% of the out-of-service equipment was placed back into service using only 107 skills covering basic knowledge in each domain; far less knowledge than that required of a biomedical engineer or biomedical engineering technician. We conclude that a great majority of laboratory and medical equipment can be put back into service without importing spare parts and using only basic knowledge. Capacity building in resource-poor settings should first focus on a limited set of knowledge; a body of knowledge that we call the biomedical technician's assistant (BTA). This data set suggests that a supported BTA could place 66% of the out-of-service laboratory and medical equipment in their hospital back into service.
- Med Biol Eng Comput. 2010 Jul;48(7):721-6. Epub 2010 May 21.
- **Evidence-based approach to the maintenance of laboratory and medical equipment in resource-poor settings.**
- Malkin R, Keane A.

(not used)

- It is often said that most of the medical equipment in the developing world is broken with estimates ranging up to 96% out of service. But there is little documented evidence to support these statements. We wanted to quantify the amount of medical equipment that was out of service in resource poor health settings and identify possible causes. Inventory reports were analyzed from 1986 to 2010, from hospitals in sixteen countries across four continents. The UN Human Development Index was used to determine which countries should be considered developing nations. Non-medical hospital equipment was excluded. This study examined 112,040 pieces of equipment. An average of 38.3% (42,925, range across countries: 0.83-47%) in developing countries was out of service. The three main causes were lack of training, health technology management, and infrastructure. We hope that the findings will help biomedical engineers with their efforts toward effective designs for the developing world and NGO's with efforts to design effective healthcare interventions.
- Med Biol Eng Comput. 2011 Jul;49(7):719-22. Epub 2011 May 20.
- **Effectiveness of medical equipment donations to improve health systems: how much medical equipment is broken in the developing world?**
- Perry L, Malkin R.

(not used)

Other videos to watch

introduction about Riders: Ian McEwan narrates (5 minutes):

http://www.youtube.com/watch?v=Tk_iZK39k1M and from

the PBS series Rx for survival (11 minutes):

<http://www.youtube.com/watch?v=ZmHL3693Cc0&feature=related>

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