Industry Experience in Transferring Technology

Technology Transfer: A Collaborative Approach to Improve Global Health

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THE IFPMA VIEW
New IFPMA Publication

• Publication highlights experience of the R&D based industry in the area of technology transfer
• It includes more than 50 case studies showcasing IFPMA’s Members track record
• It includes policy recommendations and draws conclusions with a view to inform the debate
• Provides IFPMA’s insight into the factors influencing technology transfer in the pharmaceutical sector

Technology Transfer…

*Accelerate introduction of innovative industrial processes
*Increase reliability of supply and decrease reliance on imports
*Reverse brain drain
*Raise the competence of local workforce

*Can bridge the access and R&D gaps
*Can help improve health of recipient countries’ populations
*Can help improving local infrastructures
*Improve use of innovative medicines
*Strengthen the expertise of the local communities
Also if philanthropic, to be sustainable, tech transfer collaboration may be driven by commercial rationales and market conditions.

The Right Conditions (1)

1. Promising market and accessibility
   - The larger the geographic bloc, the greater the investment appeal
   - Regional economic integration helps firms to consider small countries more easily
   - Disease prevalence shapes investment potential
   - Fair treatment of domestic and foreign companies

2. Political stability and good governance
   - Long period of stability = stronger partnership
   - If tech transfer is philanthropic there is a need for sustainability
   - A strong healthcare system is key for incentivizing tech transfer
3. **Appropriate capital markets**
   - Possibility for local partners to draw on domestic funding
   - Other foreign funding sources to step in scarce resource setting
   - Inward investment can be promoted through fiscal incentives

4. **Innovation-friendly environment & adequate IP rights**
   - Increased certainty and transparency
   - Stimulus for introducing new (foreign) cutting edge technologies
   - Creates business culture
   - Links public and private sector within borders
   - Incentivizes domestic industrial development

5. **Proper access to information**
   - Better documentation of available resources and partners
   - Improved information reduce costs

6. **Adherence to high regulatory standards**
   - Ability to meet high quality standards = technology transfer
   - Predictability and harmonization of regulatory processes

7. **Skilled workforce**
   - Absorptive capacity: not only infrastructure but human capital
   - With right conditions, tech transfer can be a way to reverse “brain drain”
   - Mentoring and training from high income countries

8. **Clear economic development priorities**
A CONCRETE EXAMPLE
The Lilly MDR-TB Partnership

Where it all began

- 1992 - Partners in Health (PIH) staff dies of MDR-TB on his return to the USA. Study of treatment failures revealed 16% prevalence of MDR-TB in Peru
- 1996 - Treatment started in cooperation with the National Tuberculosis Program (NTP) at Massachusetts State Laboratory (USA)
- 2000 - Lilly provided MSF and WHO with 2 anti-TB drugs at concessionary prices, and the Green Light Committee (GLC) was created
- 2003 - Launch of MDR-TB Partnership to support and provide medicines for pilot initiatives in resource-constrained countries worldwide

MISSION: to combat the growing MDR-TB pandemic and to support the Global Plan to Stop TB
The Lilly Approach

Increasing global supply of drugs is one step to combating the growing MDR-TB pandemic.

Effective treatment of MDR-TB requires more than just a supply of available drugs.

Lilly leads a comprehensive approach to fighting MDR-TB.

Strategic Partnerships

Drug Supply
- Akorn, U.S.
- Aspen Pharmacare, South Africa
- Hisun Pharmaceutical, China
- Purdue University, USA
- Shasun Chemicals and Drugs, India
- SIA International/Biocom, Russia
- Vianex, S.A., Greece

Research & Academics
- Eli Lilly and Company
- Harvard University & Partners in Health
- Purdue University, USA

Awareness & Advocacy
- Advocacy Partnership
- Global Giving
- Global Health Advocates
- International Centre for Migration & Health
- Pulitzer Centre on Crisis Report
- RESULTS Educational Fund
- Stop TB Partnership
- TB Alert
- TB Survival Project
- World Economic Forum

Capacity Building
- Global Business Coalition
- Global Health Committee
- International Council of Nurses
- International Federation of Red Cross and Red Crescent Societies
- International Hospital Federation
- The New Jersey Medical School Global Tuberculosis Institute
- The CDC Foundation
- World Health Organization
- World Medical Association
Focused Transfer of Technology (1)

- Share Lilly’s specific and general manufacturing knowledge
- Create self-sustaining centers of manufacturing excellence capable of providing additional products and employment
- Support reliable generic producers to ensure expanded multi-source availability of the two drugs
- Offer manufacturing firms in MDR-TB “hot spots” (China, India, Russia, South Africa) the technology to produce two second-line TB drugs
- Training in Good Manufacturing and Good Business Practices with support from Purdue University (USA)
- Provide Lilly staff on-site for technical assistance/training

Transfer of Technology Map

- **United States**: Purdue University manufactures MDR-TB medication and trains Lilly transfer of technology partners in good manufacturing practices. Lilly manufactures MDR-TB medication.
- **Russia**: SIA International will manufacture MDR-TB medication.
- **Greece**: Vivas Pharmaceutical produces MDR-TB medication.
- **India**: Hetero Drugs manufactures the active pharmaceutical ingredient for MDR-TB medication.
- **China**: Hisun Pharmaceutical produces MDR-TB medication.
- **South Africa**: Aspen Pharmacare manufactures MDR-TB medications.
Focused Transfer of Technology (2)

Aspen Background and Role:
- Good "fit" - Leading generic company. Focus on ARVs for HIV/AIDS aligned with interest to produce MDR-TB treatment.
- Capability - to process, store, and ensure quality of second-line drugs; knowledge of local regulations, standards and specifications.
- Partner role - agreed to limit profit margin for sales to international orgs and WHO

How Tech Transfer helped Aspen:
- New product/capacity - production of injectable sterile formulation, and capsules
- Revenue stream – sales allowed profit to sustain ongoing re-investment in local staff and facilities
- Employee skill-building – Lilly staff provided expertise and mentoring

Lilly's contributions:
- Provide technical staff and know-how, and financial support for facility upgrades
- Program supports country Industrial Policy of retaining and developing critical skills and unique technologies
- Reducing the dependency on imported products and providing export opportunities for the pharmaceutical sector
Conclusions and Recommendations

• Can be an innovative approach to bridge the R&D and access gaps. Sustainability is key to ensure a successful collaboration

• It is more than a question of “bricks and mortar” and occurs through many channels and specific conditions should be met.

• Each actor should play its part. Focus to be given on:
  • Attracting technology for which there is already a demand
  • Considering using mutual recognition of regulatory aspects
  • Provide access to international standard setting bodies
  • Create and provide technical and financial assistance

IFPMA Members continue to support technology transfers by:
• Creating new technology
• Delivering CSR programs offering a range of products and the transfer of specialized knowledge and skills
• Transferring not only manufacturing technology but also other forms of acquired expertise-equipment, staff training, quality, etc.

« Give a man a fish and you feed him for a day. Teach a man to fish and you feed him for a lifetime »
- Chinese proverb