

Cost of advanced medical technology

Hope Vs Dilemma

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Background

- **There is a global increase in the demand of health care services as a result of :**
 - 1- steady population growth.**
 - 2- increasing awareness of citizens.**
 - 3- the changing pattern of diseases.**
- **On the other side; the cost of qualified care service is rising due to many factors including but not limited to ;**
 - 1- Advanced medical technology which is expensive itself (cost for research, raw materials, skilled operating staff ...etc).**
 - 2- Demand for additional quantities in relation to population growth.**
 - 3- Global inflation; force to continuous rise of health care provider and medical technology manufacturer fees.**
 - 4- Market's motivation including the ability of high income countries or people to utilize expensive technology which shall drive the manufacturers away from low income consumers .**

On the other side ;the financial resources are not unlimited

Definition

Advanced technology:

The application of organized knowledge and skills in the form of devices, medicines, vaccines, procedures and systems developed to solve a health problem and to improve quality of lives.

Examples

- 1- Drugs (e.g., biotech products , biologics).**
- 2- New medical and surgical procedures (e.g., angioplasty , joint replacement).**
- 3- medical devices (e.g., PET, CT scanner, MRI , virtual colonoscopy, implanted defibrillator).**
- 4- Diagnostic tests (e.g., DNA screening).**

The impact of health outcomes

- 1- Extends and improves the life of seriously ill patient.**
- 2- Reduce hospital bed occupancy rate and time.**
- 3- Early detection of serious illness through diagnosis and screening .**

Key Questions

- **Does** technology increase cost ? And **what** benefit is achieved from the consumed resources?.
- Medical technologies tend to improve health outcomes, but they also tend to increase health costs .
- The key question from ethical perspective
Is not how much technology costs?, but whether investments in medical technology are worth the achieved health gains ??

Impact of advanced technology on the Cost

- Although AT relatively reduces financial risk of illness ,on one hand through reduction of in bed patient stay (e.g. innovative surgical procedures).

But On other hand

- What considered “Cost-saving” technologies often spread in cost-increasing ways...e.g. PET , biotech product , robotic surgery...etc .
- Some technologies focus on a small target population, with a high price e.g. Monoclonal antibodies, can add up to **\$30,000** per patient/year to the costs of treating selected cancers but targeted population smaller than **30,000** patients per year .
- other technologies may have small prices, but may be used by a large number of people e.g. Thin Prep. for cervical cancer screening adds only an estimated **\$8** to the cost of conventional Pap smears, but may be used by **more than 15** million new users.

Health economy and Cost effectiveness Concept

1- Technical efficiency :

Production of Outputs, means patient gets the right care (diagnosis and treatment).

2- Allocative efficiency :

Production of right outputs (cost effectiveness), e.g. spend enough on immunization , **avoid spending much on a few number; with very high cost patients whom get little health impact as an end a result.**

Challenges

1. Irrational use of the health technologies and pharmaceuticals ! e.g. **120,915** CT scan Ex done by **20** machine–in Baghdad in the year 2009 only), poly pharmacy and irrational drug use .
2. Iraq, in general suffers from the lack of any form of Clinical Engineering System –CES. Accompanied with the absence of active manufacturer's local agent qualifications.
3. Political influence (Acquiring and distribution...equity?!).
4. Integration of services (diagnostic / lab / therapeutic / logistics / hotel ...etc) .
5. Market driven Physicians and consumers for purchasing and utilization of advanced technology.
6. Corruption, expensive goods when offered free of charge motivate corruption and black market .
7. Risk of counterfeit, substandard pharmaceuticals and bad quality instruments.
8. Cost of maintenance , spare parts cost especially with low quality products . Monopoly ;use of closed systems force to procure convertibles, reagents, consumables ...etc with higher prices from the same manufacturers.

Warning conclusion

Since Iraqi economy is oil price dependant and health care system is centrally financed by line item budget ; based on the current and future socio-economic trends, health expenditure of the pharmaceuticals and advanced medical care expected to be increased.

Government / MOH, which has already covered around 95 % of all health expenditures for public sector, can no longer afford full free lifetime coverage for the Iraqi population.

Top expensive drugs procured by MOH
most of these drugs are used for long term life recovery
Total bill for 11 patients / single unit equals(\$ 10351)
the bill of 10,000 patient / 12 dose = \$1.24 Billion

| Item | Unit price / USD |
|---------------------------------------|--------------------------|
| Glivic cap | 2558 / 120 cap |
| Herceptin | 1900/ IV infusion |
| Mabthera | 1400/ vial |
| Actilyse | 984/ IV set |
| Novo- seven | 754 / Vial |
| Taxotere | 618 / Vial |
| ATG (anti thymocyte globulin) | 591/ vial |
| Exjade | 567 / 28 tab |
| Factor 9 | 373 / Vial |
| Oxaliplatin | 350 / Vial |
| Factor 8 | 256 / vial |

Top expensive drugs globally

Is MOH able to afford these free ??

What about Diabetics , hypertensive , IHD

Renal and Communicable diseases , ???

| Item | Annual cost / patient USD |
|-------------------|----------------------------------|
| Soliris | 409,500 |
| Elaprase | 375,000 |
| Naglazyme | 365,000 |
| Cinryze | 350,000 |
| Myozyme | 300,000 |
| Arcalyst | 250,000 |
| Fabrazyme | 200,000 |
| Cerezyme | 200,000 |
| Aldurazyme | 200,000 |

**Top ten expensive Surgical procedures in USA
IS MOH able to afford these free ?? For how long??**

| procedure | price / USD |
|--------------------------------------|--------------------------|
| Intestine transplant | 1,121,800 |
| Heart transplant | 787,700 |
| Bone marrow transplant | 300,000 – 676,800 |
| Lung transplant | 657,800 |
| Liver transplant | 523,400 |
| Open heart surgery | 324,000 |
| Pancreas transplant | 275,500 |
| Kidney transplant | 259,000 |
| Tracheotomy | 205,000 |
| Destruction of retinal lesion | 153,000 |

Proposed Strategy

1- MOH should reset its therapeutic policy to focus on:

First: Preventive .

Second: Treatable with definite cure .

Third: Controllable by surgical or conservative intervention.

Fourth: Rehabilitative.

Fifth: Supportive and palliative .

2- Apply low price technology which targets a broad spectrum of patients .

3- Revision of national drug and medical appliances procurement policy to comply with the aforementioned policies and coordinate medicine procurement between public and private sectors.

4-Development of comprehensive list of Essential medicines ; and encouraging the use of substitute or generic medicines .

Proposed Strategy ;cont

- 5- Improve the efficiency of the medical care delivery system by clinical accuracy and rational use of drugs and medical technology shall increase the productivity while decreasing costs .**
- 6- Premarital counseling and family planning for any inherited disease.**
- 7- Lifestyle changes toward healthy habits and specific to treatment taken by the patient and therapeutic compliance .**
- 8- Application of suitable payment system (service provider and customer). Including cost sharing.**
- 9- Application of suitable variant of health / social insurance**

References

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