

"Taiwan's highly efficient system of national health insurance should humble and inspire the United States." —Uwe Reinhardt (1937 - 2017)



Taiwanese vs. American Medicine: A Student's Perspective

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Education and Training

Taiwanese

6 Years College + Medical School

2 Years Internship

3-6 Years Specialty Training

American

4 Years College

4 Years Medical School

1 year Internship

3-6 Years Specialty Training

+/- 1-2 Year Fellowship



Monitors

Taiwanese

Standard Monitors with additional invasive monitoring as needed

New cost-effective technologies (SEDLINE, BIS alternatives)

New expensive technologies (Noninvasive cardiac output monitoring)

American

Standard Monitors with additional invasive monitoring as needed

New cost-effective technologies (SEDLINE, BIS alternatives)

New expensive technologies (Noninvasive cardiac output monitoring)

*Standard monitors: pulse ox, 3-lead EKG, NIBP, capnography



Adult Induction

Taiwanese

Most commonly used drugs* in non-complicated, adult GA cases during induction are lidocaine, glycopyrrolate, fentanyl, propofol, and cisatracurium.

Intubation with a “close-vision” approach, with provider directly at base of laryngoscope

American

Most commonly used drugs* in non-complicated, adult GA cases during induction are lidocaine, fentanyl, propofol, and rocuronium

Intubation with a “far-vision” approach, with provider 1+ feet away from base of laryngoscope

*Different hospitals and different anesthesiologists have different commonly used drugs on induction.



Peds Induction

Taiwanese

Parents in OR until patient asleep

IV induction with barbiturate thiamyal

American

Parents are not permitted in the OR

Oral midazolam commonly used**

Almost always sevoflurane induction, if IV use propofol

*Different hospitals and different anesthesiologists have different commonly used drugs on induction.

**Hospital sample size of n=1



Mid-Level Providers

Taiwanese

CRNAs working with VS/Attending Physicians,
enabling increased efficiency of care

American

Some CRNAs lobbying for independent practice,
others work under physician supervision



Clinics

Taiwanese

Due to NHI and low barrier of access to care, patients often come in to clinic for the slightest complaint. It is not uncommon for providers to see up to 30 patients per hour, with many patients scheduled each clinic day.

Routine yearly PCP visits are uncommon

American

Higher copays often lead to patients coming in with multiple complaints that cannot be addressed in a single visit. At free clinics/government run institutions, clinic days are often overbooked and patients break appointments frequently.

Routine yearly PCP visits are recommended

Cost of Obtaining Care

Taiwanese

Mandatory Single-Payer Government Run National Health Insurance that includes all medical services, Chinese medicine, pharmaceuticals, most dental care, and home care by a visiting nurse

Inpatient Hospital Coinsurance is capped at 6% of the average national income per person for a single admission, and 10% for an entire calendar year

Fee For Service with low prices set by the Bureau of National Health Insurance

Physician Consultations are \$5-10 USD

6.2 percent of the Taiwan GDP on Health Care

Low wait times, high level of public satisfaction (85%)

High transparency regarding prices of procedures



American

Private vs. Government-Run (Medicare for elderly/Medicaid for the disabled, indigent, children)

Most Employers with >50 employees must insure workers or pay a tax

Coverage differs depending on Insurance Plan

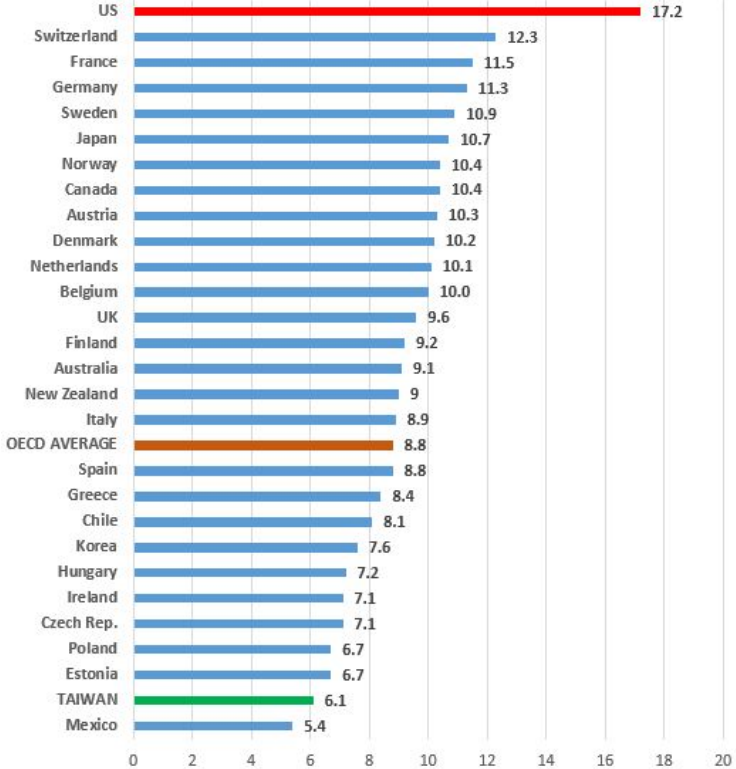
Children are covered by parent's insurance up to age 26

16 percent of United States GDP on Health Care

Consultations are \$50-\$250+ USD

Low transparency regarding prices of procedures. It is not uncommon for both physicians and patients to have no knowledge of the cost of materials and labor, and for patients to be shocked when billed at a later time

National Health Expenditure As A Percent Of GDP In Select OECD Countries And Taiwan, 2017



	Taiwan	Spain	Australia	Switzerland	UK	New Zealand		US	
							25th Percentile	Average Price	95th Percentile
Drugs:									
Xarelto	60	101	NA	102	126	NA	289	292	320
Harvoni	2,132	18,165	NA	16,861	22,554	NA	31,640	32,114	33,135
Tecfidera	872	1,399	NA	1,855	663	NA	4,967	5,089	5,372
Diagnostics:									
MRI	288	130	215	503	788	811	448	1,119	3,031
Cardiac Catherization	143	2974	487	181	4,046	3,196	750	5,061	13,457
Procedures-Total Hospital and Physician:									
Appendectomy	2,484	2,003	3,814	6,040	8,009	6,199	9,332	15,930	33,250
Normal delivery	1,320	1,950	5,312	7,751	NA	NA	8,011	10,808	18,383
C-section	1,404	2,352	7,901	9,965	NA	NA	11,401	16,106	28,473
Knee replacement	7,895	6,687	15,941	20,132	18,451	16,508	18,577	28,184	55,579
Hip replacement	5,841	6,757	19,484	17,112	16,335	15,465	18,810	29,067	57,225



Equipment and Efficiency

Taiwanese

Reuse of most equipment to drive down cost, making Taiwan one of the top 10 most efficient countries with regards to medical spending

Reusable gowns, certain bovie tips

Unfortunately, these cost-saving measures also impact physician salaries

American

Almost everything touching the patient is one-time use (drapes, gowns, gloves, bovie tips, suction tips).

America is one of the least efficient countries with regards to medical spending

Procedures can cost 20-300x higher when performed in the US

Becoming standard at most hospitals to have U/S for nearly all procedures (A-line, CVCs.



Electronic Medical Record

Taiwanese

Online EMR System with support for intraoperative anesthesia OR monitoring

H&P, Progress Notes, and Clinic Visits charted in English, but often lack a comprehensive History of Present Illness, perhaps due to language barriers of translating from Chinese to English or the high volume of patients requiring concise charting

Taiwan is more likely to form a unified system sooner than the United States due to most hospitals being on the same EMR, increasing compatibility for data sharing between hospital systems.

American

3 Main EMR systems in place at many hospitals and most academic centers across the USA:

- Cerner
- Epic
- VISTA

Cerner and Epic are the most commonly used. VISTA is used exclusively by the VA system.

Other EMR systems (eg CareVue) or paper charting are rarer. Occasionally, paper charting may still be used even in hospitals where Cerner and Epic anesthesia charting are available due to IT setup or other issues.

VISTA does not have electronic anesthesia charting

These EMRs often feature remote access for patients to access their own charts if desired



Preventative Care

Taiwanese

Patients can request screening and checkups with a large out of pocket cost

American

Screening tests will typically only be provided, and covered by insurance, under certain criteria outlined by the US Preventive Services Task Force.

Patients can request additional screening and checkups, but this may be prohibitively expensive. Culture-wise, it seems that American patients are also less likely to request such healthcare.



Perioperative Involvement

Taiwanese

Parts of H&P performed in the room, prior to induction and after ancillary staff transfers patient to OR

Rapid turnover in the room (5-10 min) enables high case volume

Time-out before procedures

American

Performed in the pre-operative holding room, and anesthesiologist must transfer patient from holding area to OR prior to surgery

Rapid turnover in private practice, but slower-paced at academic institutions

Time-out before procedures



NTUH is Cutting Edge

Taiwan borrows the best techniques and technologies from multiple countries including USA and Germany, but it continues to lead the world in many aspects:

1979: First successful partition of ischio-typed conjoined twin in Taiwan, also the second one in the world

1995: First transthoracic video endoscopic electrocautery of sympathetic ganglia for hyperhidrosis palmaris in the world

2008: Set up ECPR program and Publication of ECMO assisted cardiopulmonary resuscitation in Lancet 1000 cases of ECMO experience in NTUH.

2009: Publication of first successful Hybrid surgery

2010: Completion of first SILS distal pancreatectomy in the world in May

2019: Development of new cranial activity monitors, use of spontaneous breathing in VATS procedures, and new developments in genetic screening for malignant hyperthermia



Conclusions

NTUH is very frugal and effective in driving down cost, enabling great access to high-quality affordable healthcare to Taiwan citizens

NTUH utilizes techniques and cutting edge technologies from other countries, but also attributes resources to advancing medical knowledge (i.e. malignant hypertension screening test currently being developed by an attending at NTUH, and the utilization of TIVA with lack of protected airway in certain low-risk VATS procedures)



Thank you!





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醫生

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