MODELLING DEMENTIA HEALTHCARE PATHWAYS IN LOW, MIDDLE AND HIGH INCOME COUNTRIES

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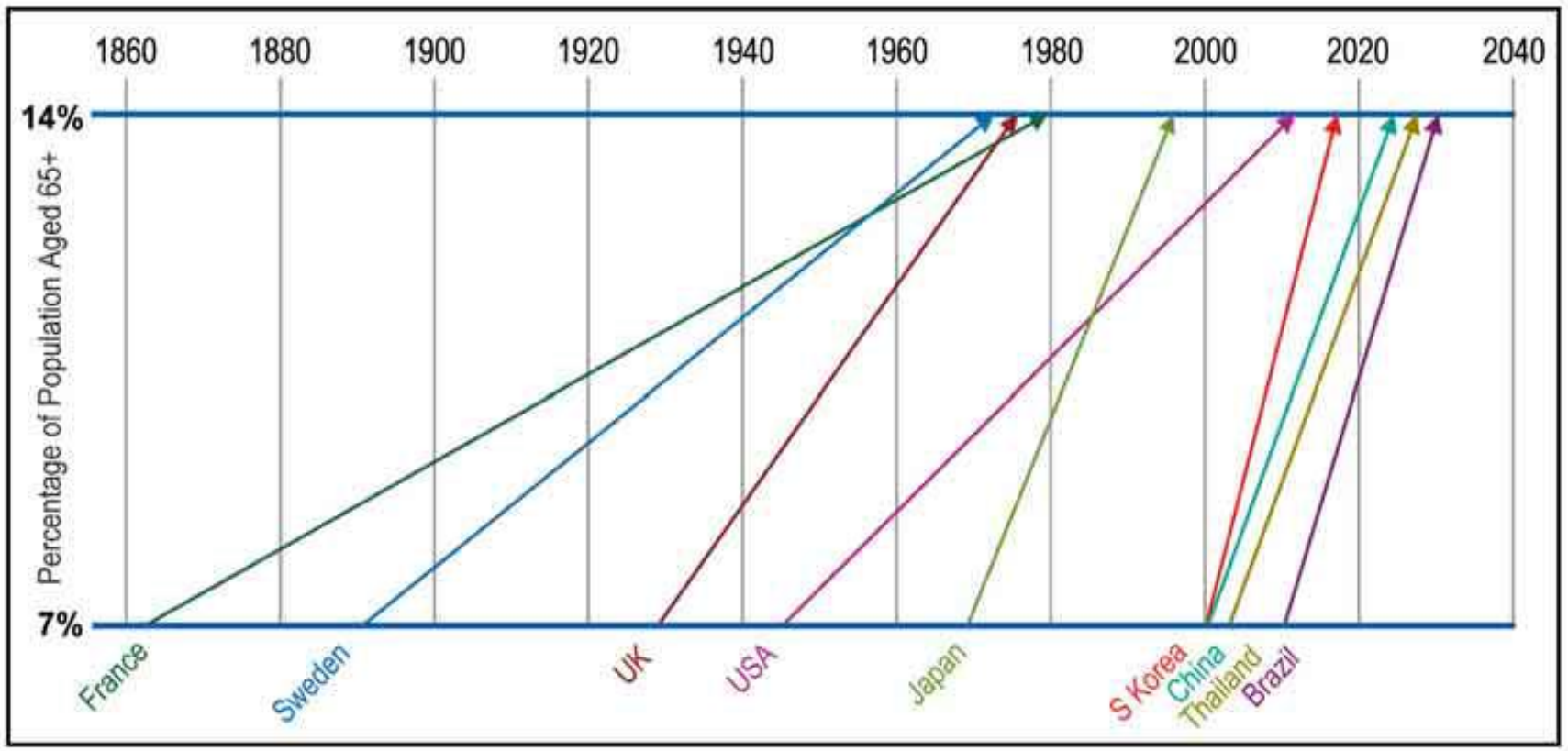
DEMENTIA: NOT JUST A "DEVELOPED WORLD" CONDITION

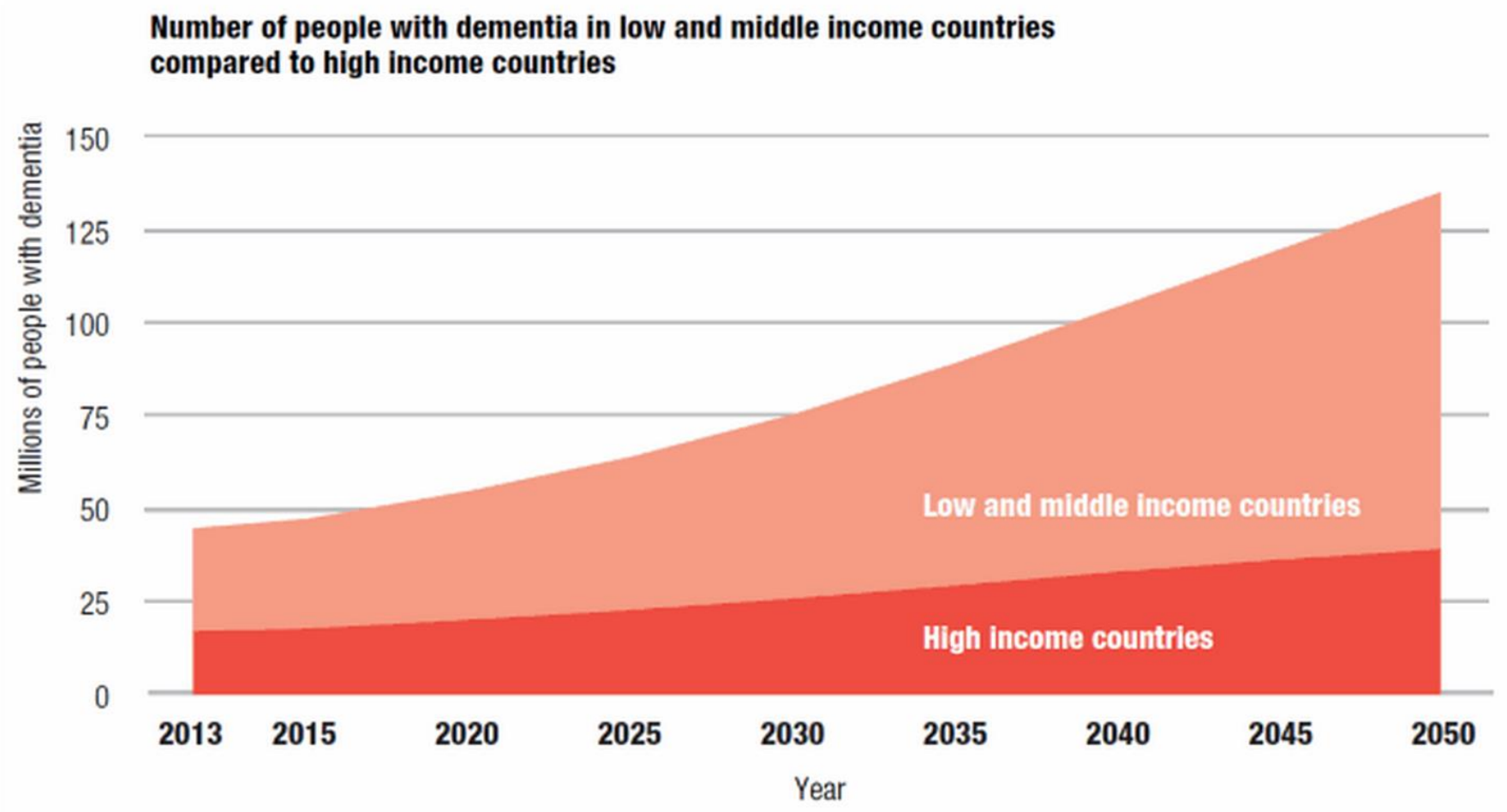
Ageing is happening all over the world, and at a much faster pace in the low and middle-income countries

The speed of population ageing:
Time expected for the % of population aged 65+ to increase from 7 to 14%

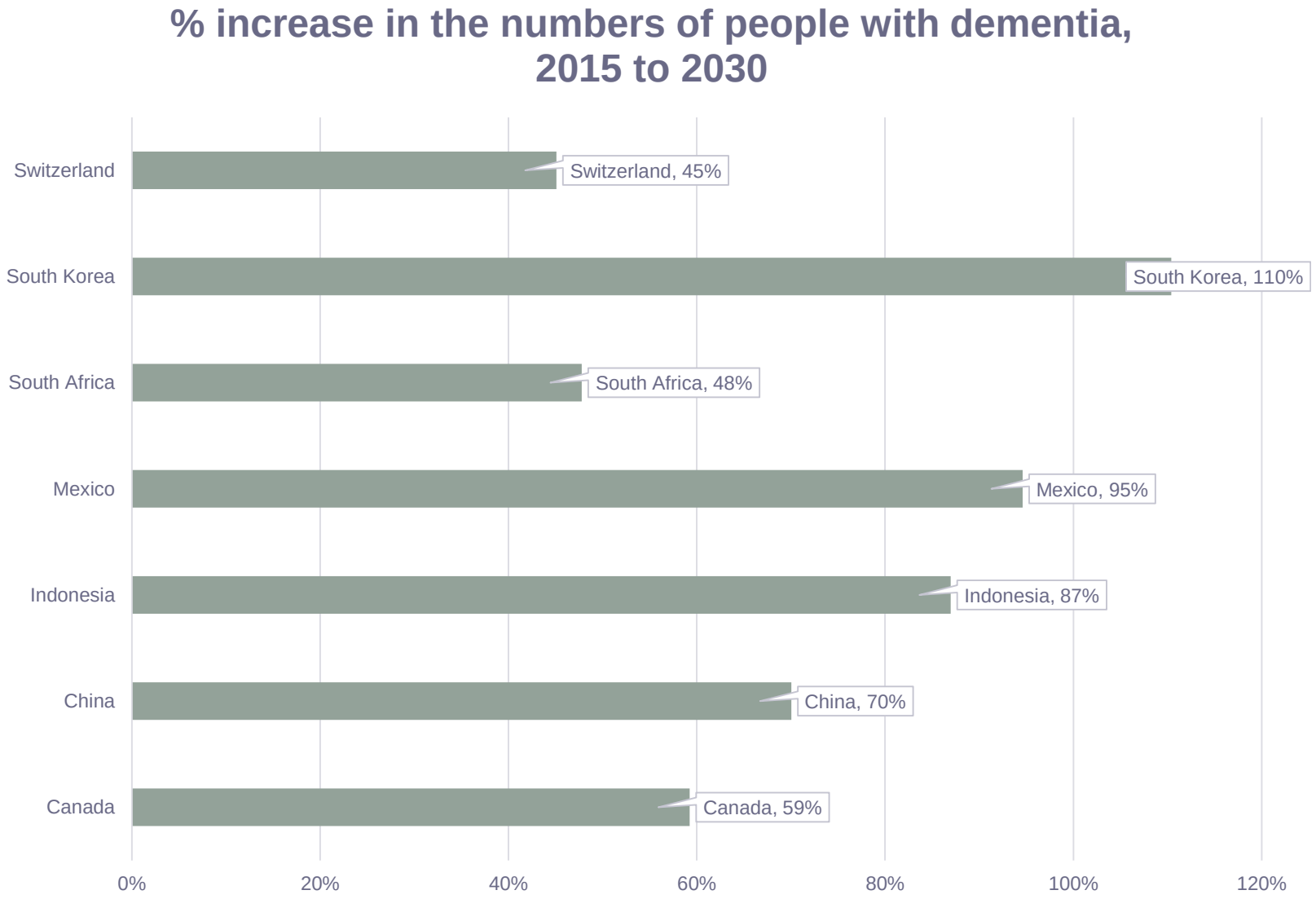


Source: WHO Global Health and Aging 2011, from Kinsella and He 2008 & US Census Bureau 2009.

Dementia is a global issue, growing faster in low and middle income countries

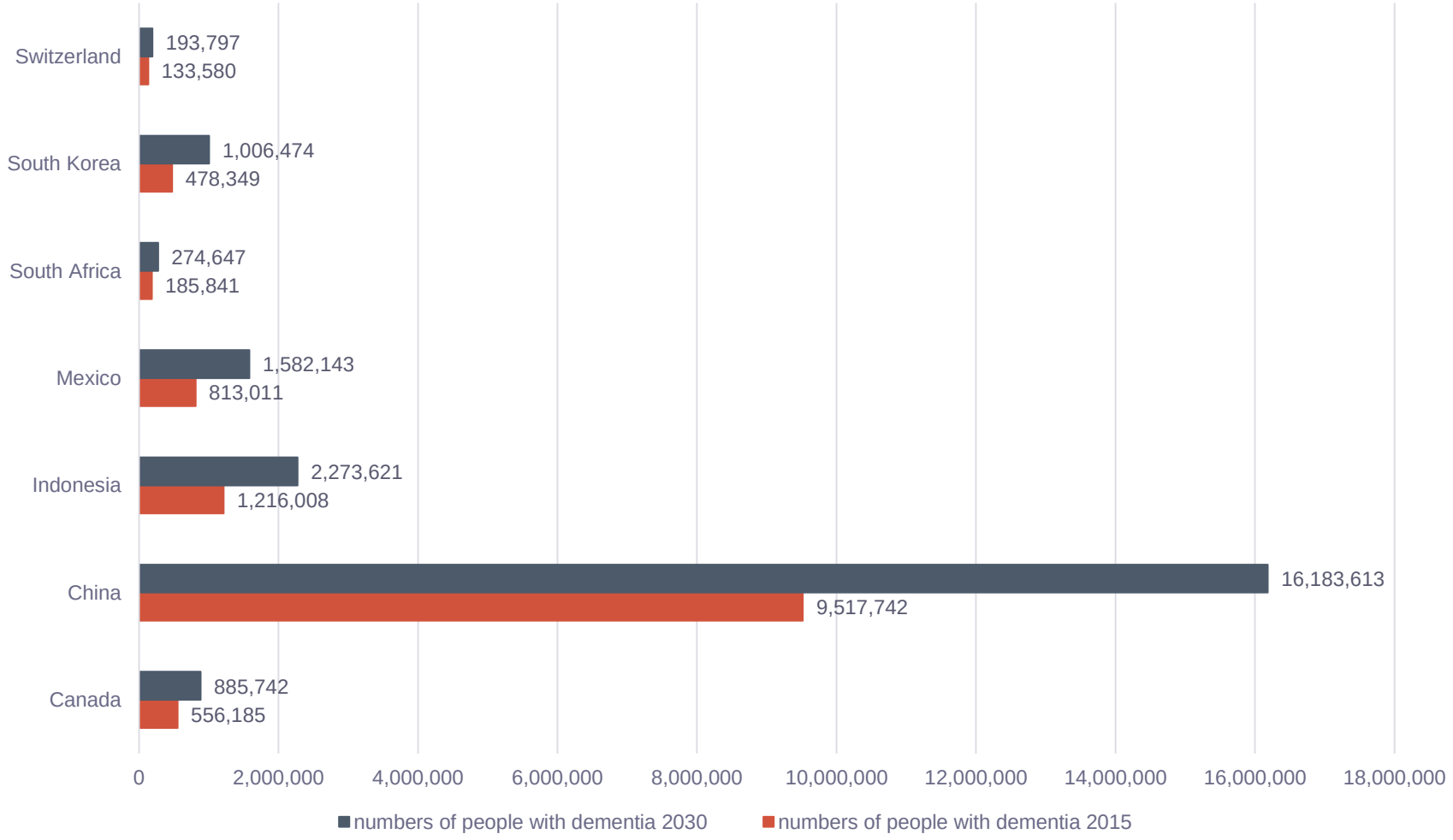


Source: Alzheimer's Disease International Policy Brief: The Global Impact of Dementia 2013-2050



Source: estimates from the World Alzheimer Report 2015, Prince et al.

Absolute numbers are important too: estimated numbers of people with dementia, 2015 and 2030.



Source: estimates from the World Alzheimer Report 2015, Prince et al.

DEMENTIA HEALTHCARE PATHWAYS

How to expand care sustainably: task-shifting

Two different challenges:

- Adapting well-established health systems (High Income Countries, HIC), dominated by a tradition of “curative” health care, to the needs of increasing numbers of people with dementia.

- Developing new health care provision to meet the needs of increasing numbers of people with dementia (and other chronic conditions), in a context of rapid ageing and Low and Middle Income Countries (LMIC) resource availability.

Health care is a relatively low part of the total costs of dementia, and perhaps too low:

- **Diagnostic** is the gateway for access to health and social care. But low coverage: 40-50% in most HIC, around 5-10 in most LMIC.
- **Lack of specialist services**: very few in LMIC. In HIC they struggle to keep up with rapidly increasing numbers of people with dementia.
- Even **interventions** with a strong evidence-base (for example acetylcholinesterase inhibitors and memantine) are **not being delivered** to all who might benefit.
- Other interventions (eg early post-diagnostic support, case management/ coordination) remain **thinly evidenced**, particularly with regards cost-effectiveness.
- In the event of **new treatments** that alter the course of dementia, there will be a need for healthcare delivery systems capable of providing high coverage, with equity.

Expanding healthcare for people with dementia: task-shifting

- ***Task-shifting****:* delegating selected tasks to existing or new health professional cadres with either less training or narrowly tailored training.
  - Shifting tasks from higher to lower skilled workers (eg from a neurologist specialist doctor to a general practitioner),
  - Shifting tasks from workers with more general training to workers with specific training for a particular task (e.g. from a PCP to a dementia case manager).
  - Assumptions:
    - The unit cost of the task-shifted option is cheaper, and that the quality of care and its outcomes are equivalent.
    - The less-specialised cadre are more numerous and can be trained more quickly: the dementia healthcare workforce could be scaled up more quickly.
  - Evidence: with adaptation and appropriate training and supervision, it is feasible for interventions developed to be delivered by specialist doctors to be taken on by non-specialists (and non-doctors) without an adverse effect on clinical outcomes (growing evidence of moderate quality)
- ***Task-sharing***: In reality, almost all task-shifted models of service delivery include an element of task-sharing between specialist and non-specialist services.

A task-shifted dementia health care pathway

1. Diagnostic (mostly primary care, GPs and case managers)
2. Initial treatment and post-diagnostic support:
    1. Assessment for anti-dementia drugs
    2. Post-diagnostic support package
    3. Carer training and support
3. Continuing care
    1. Anti-dementia medication reviews
    2. Management of behavioural and psychological symptoms
    3. Case management
4. End of Life care

COSTING DEMENTIA HEALTHCARE PATHWAYS

Costing a task-shifted dementia healthcare pathway: 2015-2030

- **Method:**
- Demographic and prevalence of data to calculate numbers of people with dementia in 2015 and 2030.
- Assuming that diagnostic rates increase (from 50% in 2015 to 75% in 2030 for HIC and, respectively, from 10% to 50% in LMIC).
- Applying unit costs of care to the different elements of the care pathway.
- Assuming that the real costs of care will increase in line with GDP per capita.
- We only cost the dedicated dementia pathway, not all the health care use by people with dementia.

Comparable unit costs of care?

- Difficult to obtain unit costs for most services and most countries.
- Calculated “international unit costs”:
  - Used Unit costs of Care from the UK (PSSRU Unit Costs 2015 and DH) to obtain the relative cost difference between care professionals (and interventions/services/tests/drugs).
  - Used WHO Choice 2008 unit costs of care data to obtain the relative unit costs differences between countries (in PPP International $ and including the UK).
  - Adjusted the “between country cost differences” for changes in PPP 2008 to 2015, between each country and the UK.
  - Adjusted the 2015 UK Unit costs to reflect country differences and applied exchange rate to US$ 2015.
- Where local data was available (e.g. costs of GP, specialists, nurses, or for particular drugs or tests, this was used.

How much does it cost to provide the task-shifted pathway? (cost per year, in 2015 US$)

		China	Indonesia	Mexico	South Africa
Cost per person with dementia		13	10	2	4
Cost per person diagnosed		130	98	21	37

Impact of differences in unit costs on the relative cost of each part of the care pathway

	China	Indonesia	Mexico	South Africa
Community health workers	1.15%	1.41%	19.76%	7.52%
General practitioners	0.90%	1.20%	17.78%	15.67%
Specialist doctors	0.25%	11.16%	3.54%	3.27%
Nurses	2.30%	2.83%	39.67%	19.98%
Anti-dementia medication	91.98%	81.50%	3.97%	49.04%
Blood tests	0.74%	0.06%	0.04%	0.02%
Neuroimaging	1.37%	1.62%	10.76%	3.73%
Hospital inpatient stays	1.32%	0.22%	4.48%	0.77%

Some costing considerations:

- The relative cost of different healthcare professionals is not the same (i.e. in the UK GPs unit costs are higher than specialists).
- Not all professionals are the same: most primary care doctors in rural China do not have a university degree.
- There are huge differences in the costs of drugs, depending on the policies with regards generics and additional prescription fees.
- The costs of equipment such as MRI scans can also be very different in LMIC and HIC.