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NIPFP macro finance

To: NITI Aayog (NITI)

From: NIPFP

Subject: Comments on the *National Medical Commission Bill, 2016*

Date: December 2, 2017

Summary of recommendations

- Lay down a detailed procedure for selection of members for selection of member of National Medical Commission (NMC) and the statutory boards.
- The NMC and the statutory boards should include a majority of members from diverse backgrounds, while providing for representation from doctors.
- Lay down detailed eligibility criteria for members of the NMC and the statutory boards, who are not medical professionals.
- Ensure clear demarcation of functions between the statutory boards, while keeping in mind that there is no conflict of interest.
- Establish the statutory boards based on area specialisation in the field of medicine.
- Lay down detailed procedures for developing the curriculum, the accreditation standards and the procedure for accreditation.
- Include provisions for periodic assessment of doctors through mandatory renewal of the license to practice medicine and through continuing medical education.
- Lay down a clearly defined code of ethics and a detailed procedure for the enforcement of the code of ethics.
- Provide for an integrated package to tackle the mal-distribution of doctors.
- The state governments should be involved in the reform of regulation of medical education and doctors.

Objective

NITI has released a draft *National Medical Commission Bill, 2016* for public comments. The draft bill seeks to replace the *Indian Medical Council Act* and establish a new framework for the regulation of medical education and medical practitioners of modern medicine.

This note analyses the draft bill. The note is divided into the following sections:

Section 1 gives a brief background of the events leading up to the draft bill.

Section 2 discusses the *Functioning of Medical Council of India*.

Section 3 lays down the general principles for setting up a regulator, objectives of regulations and governing principles applicable to regulation of medical education and profession.

Section 4 provides the essential attributes of the regulatory framework for medical education and professional conduct.

Section 5 compares the *Indian Medical Council Act*, the *National Medical Commission Bill, 2016* and Australia's *Health Practitioner Regulation National Law*.

Section 6 contains the conclusion.

1 Background

Under the *Constitution of India*, regulation of medical education and medical professions is provided under the concurrent list.[1] Consequently, India has two parallel structures at the centre and one in each state, regulating medical education and professions.

The *Indian Medical Council Act* established the Medical Council of India (MCI), the principal regulatory body for medical education and profession. The Act was replaced by the *Indian Medical Council Act*. In addition, the states have also established *State Medical Councils* under their respective state laws.

Recently, the *Functioning of Medical Council of India* found a number of glaring lapses in the constitution and functioning of the MCI. Following this, the Government of India has setup a four member Committee, headed by the vice-chairman of NITI, to examine all options for the reform of the MCI and suggest a way forward.[2]

In addition, the Supreme Court of India in its order dated May 2, 2016 in *Modern Dental College vs. State of MP* ordered the constitution of an Oversight Committee to oversee the functioning of the MCI and all other matters considered by the Parliamentary Committee.

2 The *Functioning of Medical Council of India*

The *Functioning of Medical Council of India* concludes that there is a total system failure in the functioning of MCI due to which the quality of the medical education system and medical practitioners has spiralled downwards. The key issues identified by the Report are:

[1] See, Items 25 and 26 under List III, Schedule VII, *Constitution of India*, 1950, URL: http://lawmin.nic.in/olwing/coi/coi-english/coi-4March2016.pdf (visited on 11/13/2017).

[2] Press Information Bureau, Government of India, *Committee to oversee functioning of MCI*, July 26, 2016, URL: http://pib.nic.in/newsite/mbErel.aspx?relid=147724 (visited on 08/28/2016).

- **failure of the MCI** to perform its functions due to lack of transparency and accountability;
- **failure of the medical education system** in producing high quality doctors suited to working in the Indian context; and
- **failure of the medical profession** due to poor quality doctors and lack of respect to adhere to the professional code of ethics.

The Report recommends:

> *"Game changer reforms of transformational nature are therefore the need of the hour and they need to be carried out urgently and immediately. Because, if revamping of the regulatory structure is delayed any further on any grounds including political expediency, it will be too late as too much momentum will have been built to offset attempts at reversing the direction later, with the result that our medical education system will fall into a bottomless pit and the country will have to suffer great social, political and financial costs." (Para 13.5)*

2.1 Issues addressed under the *National Medical Commission Bill, 2016*

The following tables map the issues raised by the *Functioning of Medical Council of India* and whether the *National Medical Commission Bill, 2016* addresses those issues.

Table 1 tracks the recommendation of the *Functioning of Medical Council of India*, with regard to composition and functioning of the MCI

Table 1: Composition and functioning of the MCI

Issues	The NMC Bill, 2016
Appointment of members	Yes
Diversity in membership	Yes[1]
Power of Central Government to give directions	Yes
No member to have more than two terms	Partly [2]
Accountability of regulatory body	Yes
Bifurcation of functions	Partly[3]
Opaque inspection procedure	Can't say[4]

[1] Although the proposed NMC has more diversity than the MCI, doctors continue to remain in majority
[2] Not applicable to the nominees of the Central Government in the NMC
[3] The bill creates four statutory boards to carry out each function of the NMC. However, many functions are overlapping and being carried out by two or more bodies.
[4] These details have been left to delegated legislation.

Table 2 tracks the recommendation of the *Functioning of Medical Council of India*, with regard to regulation of medical education

Table 2: Regulation of medical education

Issues	The NMC Bill, 2016
Less weight-age to infrastructure	Can't say
Regulate fees in private medical colleges	Yes
Separate UG and PG boards	Yes
Quality UG and PG medical education	Can't say
Common medical entrance and exit test	Partly[1]
PG Specialty sub-boards	**No**
One regulatory body for PG education	Yes
Rationalise eligibility criteria for teaching	Can't say
Independent accreditation body	Yes[2]

[1] No common exit test for post-graduate medical courses
[2] The bill proposes to establish a separate *Medical Assessment and Rating Board* for accreditation of medical colleges. However, the process of accreditation is not laid down under the bill.

Table 3 tracks the recommendation of the *Functioning of Medical Council of India*, with regard to regulation of medical profession

Table 3: Regulation of medical professionals

Issues	The NMC Bill, 2016
Separate board	Yes
Non-doctors on the board	**No**
Well-defined code of ethics	Can't say
Code of ethics for hospitals, etc.	**No**
Stronger mechanism for ethical oversight	**No**
Auditing of medical practices	**No**
Clearly defined roles for MCI and State Medical Councils	Yes
Live and online Indian Medical Register	Yes
Mandatory registration renewal and CME	**No**
Better pay structure for doctors	**No**

3 Principles of regulation

The regulatory framework for medical education and profession must be based on the following principles:

Protection of consumers of health services. There are fundamental market failures in the field of health care that emanate from the problem of information asymmetry. The information asymmetry arises on account of the complexity of medical knowledge and inability of the patient to understand the possibilities and consequences of medical treatment, which results in creating a high degree of dependence on the practitioner.[3] This warrants intervention by the state in the form of professional licensing requirements and enforcing a clearly-defined professional code of ethics.

High quality of doctors. Medicine is a complex and technical discipline. A medical education system which produces bad quality of doctors can be detrimental (and at times fatal) to the consumers of health care. This warrants intervention by the state in the form of regulating the quality of medical education, professional licensing requirements and provision for periodic assessment of licensed practitioners.

Access to services provided by a doctor. This requires interventions that ensure adequate number of doctors in the country, enable mobility of doctors and introduce incentives innovation in the field of medical education and service delivery by doctors.

4 Essential attributes of regulation

The *FSLRC Report: Vol. I*, lays down the general principles of setting up regulators.[4] While it was made in the context of financial sector regulators, most of those principles are common legislative concerns for setting up statutory regulators in any field. These deal with, the structure of the regulator, membership, separation of powers within a regulator which serve the primary goal of *consumer protection*. In addition, for the medical field we feel the governing principles should include, specialisation, quality of medical education, quality and accessibility of doctors.[5]

Since this field is in the concurrent list, coordination with state governments is also an issue.

Well-structured regulator

A regulator must be well-structured, comprise of experts from the relevant field and should be appointed in a fair and transparent manner. The *National Medical Commission Bill, 2016* rightly seeks to establish the NMC, which is a corporate entity and comprises

[3] Kenneth J. Arrow, "Uncertainty and the Welfare Economics of Medical Care", in: *The American Economic Review* 53.5 (1963), pp. 941–973, URL: http://www.jstor.org/stable/1812044.

[4] See Chapters 3 and 4 of the Financial Sector Legislative Reforms Commission, *Report of the Financial Sector Legislative Reforms Commission, Volume I: Analysis and Recommendations*, tech. rep., Government of India, Mar. 2013, URL: http://finmin.nic.in/fslrc/fslrc_report_vol1.pdf (visited on 05/03/2016).

[5] Some of these ideas have also been reflected in the report, *A Healthier Future for All Australians: Final Report*, June 2009.

of a chairperson, a board and a secretariat. The members of NMC are either nominated or appointed by the government with the aid of a search and selection committee.

Recommendation: Although the bill lays down the machinery for appointment of members of NMC, it needs to lay down a detailed procedure for selection of members.

Diversity of members

A regulator should comprise of a wide pool of experts from diverse backgrounds. The regulator should not comprise of a majority of members of the regulated entity. The NMC, although diverse, comprises of a majority of doctors.[6] The statutory boards comprise solely of doctors.[7] This is likely to lead to a situation of *regulatory capture* by the regulated entity. Under the current system, the MCI comprises of a majority of doctors, which has resulted in a badly-functioning regulator.[8]

Recommendation: The proposed NMC should include a majority of members from diverse backgrounds, while providing for representation from doctors. The bill should lay down detailed eligibility criteria for members who are not medical professionals.

Separation of powers

A regulator of the medical field is required to establish and regulate a minimum standard of medical education, medical universities and medical practitioners. Each of these functions must be carried out independently. The *National Medical Commission Bill, 2016* rightly establishes independent statutory boards to perform these functions. However, many functions are over-lapping and may also lead to conflict of interest. For instance, recognition of medical qualifications is jointly carried out by not only the under-graduate and post-graduate boards but also the NMC and the government.[9] Assessment and rating of medical colleges is to be carried out by the same statutory body.[10]

Recommendation: The bill should provide for a clear demarcation of functions between the statutory boards, while also ensuring that there is no conflict of interest.

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[6] See Section 6, *National Medical Commission Bill, 2016*, URL: http://niti.gov.in/writereaddata/files/new_initiatives/MCI%5C%20Bill%5C%20Final.pdf (visited on 08/17/2016).

[7] See Sections 18, 21, 24 and 28, ibid.

[8] See Chapter 3, Department-Related Parliamentary Standing Committee on Health and Family Welfare, *Functioning of Medical Council of India, Ministry of Health and Family Welfare*, tech. rep. Ninety-Second Report, Mar. 8, 2016, URL: http://164.100.47.5/newcommittee/reports/EnglishCommittees/Committee%5C%20on%5C%20Health%5C%20and%5C%20Family%5C%20Welfare/92.pdf (visited on 04/21/2016).

[9] See Chapter 9, *National Medical Commission Bill, 2016*, see n. 6.

[10] See Section 25, ibid.

Specialisation

Medicine is a complex and technical field comprising of general practice as well as specialisations, like dentistry, radiology, pharmacy, etc. Each specialisation has distinct considerations which must be taken into account during regulation. For instance, Australia's *Health Practitioner Regulation National Law* establishes separate national boards for each specialisation. Each of these boards regulate their respective fields of medicine.

Recommendation: The bill should establish the statutory boards based on area specialisation in the field of medicine.

Quality of medical education

Regulation of medical education entails developing and enforcing a competency-based curriculum, accreditation of medical universities and rating of medical universities. Although the *National Medical Commission Bill, 2016*, entrusts these functions upon the under-graduate board, post-graduate board and the medical assessment and rating board, many of the details have been left to delegated legislation.

Recommendation: The bill should lay down detailed procedures for developing the curriculum, the accreditation standards and the procedure for accreditation.

Quality of doctors

Regulation of doctors entails licensing requirements, maintenance of a live medical register and provision for continuing medical education. The *National Medical Commission Bill, 2016* rightly seeks to register doctors based on qualifying the exit exam. This will ensure availability of doctors of a minimum standard. The bill has also created provisions for creating a publicly available online register of doctors.

Recommendation: In addition, the bill should include provisions for periodic assessment of doctors through mandatory renewal of the license to practice medicine and through continuing medical education. This is essential to ensure doctors continue to develop their knowledge and remain updated.

Consumer protection

The existence of market failure in the form of information asymmetry creates the need for high standards of protection of consumers of health services, comprising of preventive and curative tools. This entails an enumerated set of rights and protections for the consumers, a clearly defined code of ethics and a fair and transparent procedure for the enforcement of the code of ethics.

Recommendation: The bill should lay down a clearly defined code of ethics and a detailed procedure for the enforcement of the code of ethics.

Accessibility of doctors

The *Functioning of Medical Council of India* notes:

> *"Shortage of doctors, who are the most important cog in the health care delivery system, has derailed both access to and quality of health care, especially to the vulnerable and poorer sections of the country." (Para 1.1)*

There is a clear need to create incentives to improve accessibility issues.

Recommendation: The bill should provide for an integrated package to tackle the maldistribution of doctors. The package may provide support through university fee relief, medical bonded scholarships, periodic study leave, developing a remote and rural health research program, etc.[11]

Co-ordination with the state machinery

The regulatory system for medical education and doctors includes the centre and state machinery. Such a system works best when both have clearly delineated roles and responsibilities and adequate funding to meet those responsibilities.[12] Reforming the centre machinery, while leaving the state machinery intact, might be detrimental to the reform process. Australia, which also has a federal structure, has enacted a uniform law, *Health Practitioner Regulation National Law*, throughout the Commonwealth.

Recommendation: The state governments should be involved in the reform process for regulation of medical education and doctors. The *State Medical Council Acts* should be amended alongside the *Indian Medical Council Act*. Like Australia, a uniform law for regulation should be enact throughout India.

5 Comparative analysis

This section highlights key differences between the *Indian Medical Council Act*, the proposed *National Medical Commission Bill, 2016* and the Australian *Health Practitioner Regulation National Law*, based on the regulatory structure, composition of the principal regulator, regulation of medical education and regulation of medical professionals.

5.1 Regulatory structure

The *Indian Medical Council Act* establishes the MCI under the overall supervision of the government. The government is responsible for granting recognition to medical colleges and medical qualifications. The MCI, through various committees, prescribes standards of medical education, standards of medical profession and oversees the

[11] *A Healthier Future for All Australians: Final Report*, see n. 5.
[12] Ibid.

functioning of medical colleges and medical professions. A similar regulatory structure is also created by the states.

The proposed *National Medical Commission Bill, 2016* seeks to revamp the regulatory structure created under the *Indian Medical Council Act*. It establishes the NMC which oversees the functioning of four statutory boards for under-graduate education, post-graduate education, assessment and rating of medical institutions and regulation of medical profession. The NMC is advised by a Medical Advisory Council (MAC) which represents all the states.

In Australia, all states have enacted the *Health Practitioner Regulation National Law*. The law establishes the Australian Health Practitioner Regulation Agency (AHPRA) as the principal regulatory body. AHPRA contains representation from all the states. It oversees the functioning of 14 National Boards, established for different medical professions. The National Boards regulate medical education and profession in its area of specialisation. The AHPRA is advised by a Ministerial Council and functions under the supervision of an Agency Management Committee.

5.2 Composition of regulator

The MCI comprises of government nominees, elected members from each medical university and elected members from amongst registered medical practitioners. Today, the MCI has 102 members, out of which 35 are nominated and 67 are elected. Majority of the members are doctors.[13]

The proposed NMC comprises of 20 members, which includes a chairperson, a member secretary, 8 ex-officio member and 10 part-time members. Although the proposed body is diverse, the majority of members continue to be doctors. In addition, the statutory boards comprise of doctors alone.

Australia's AHPRA includes a chief executive officer who is supported by a staff. Currently, the AHPRA comprises of 12 members, including the chief executive officer, executive directors, state managers and territory managers. The majority of the members are from diverse fields such as law, public administration, accountancy, hospital management, etc.[14]

5.3 Regulation of medical education

The MCI prescribes standards for medical education and oversees the functioning of medical education through inspections. It has the power to appoint committees to carry out these functions.

The proposed NMC consists of two boards to develop curriculum for undergraduate and postgraduate levels, while medical institutions are accredited by the assessment

[13] Department-Related Parliamentary Standing Committee on Health and Family Welfare, see n. 8.

[14] *AHPRA Senior Managers*, URL: http://www.ahpra.gov.au/About-AHPRA/Who-We-Are/AHPRA-Senior-Managers.aspx (visited on 08/29/2016).

and rating board. The assessment and rating board can engage a third party to carry out the inspections of medical institutions.

Under Australia's *Health Practitioner Regulation National Law*, the national boards have the power to engage an external accreditation authority to accredit medical colleges within its jurisdiction. An accreditation authority develops accreditation standards through widespread stake holder consultation and the same is approved by the concerned national board. Medical institutions are accredited on the basis of curriculum educational expertise, educational budget and resource allocation, research and scholarship, staff resource, staff development, education providers' assessment policy, admission policy, student representations etc.[15]

5.4 Regulation of medical professionals

Regulation of doctors includes professional licensing and enforcement of code of ethics. Registration of doctors is done by the *State Medical Councils*, while the MCI maintains a national register of doctors, which is updated each time an individual registers with the *State Medical Council*. In addition, the MCI prescribes standards of professional conduct and enforces these standards.The responsibility of enforcing standards of professional conduct is shared by the MCI and the *State Medical Councils*.

The proposed *National Medical Commission Bill, 2016*, entrusts both these responsibilities on the medical registration board, which includes maintaining a live national register and prescribe standards of conduct for doctors. Enforcement of these standards has been left to the *State Medical Councils*.

In Australia, the AHPRA and the National Boards maintain a similar register of doctors as well as students of medicine. The *Health Practitioner Regulation National Law*, provides for different types of registrations, including general registration, specialist registration, provisional registration, limited registration and non-practising registration. The act also contains provisions for continuing medical education of doctors. The code of professional conduct is laid down in the statute itself.[16] Enforcement of the code of conduct is entrusted with the state governments.

6 Concluding remarks

The need to overhaul the regulatory system of medical education and professionals has been reiterated time and again. The *National Medical Commission Bill, 2016* is a welcome move in this direction. The bill rightly seeks to establish a structured regulator and delineate functions related to quality of medical education, assessment of medical colleges and regulation of doctors. At the same time, the bill needs to be more detailed

[15] Australian Medical Council Limited, *Standards for Assessment and Accreditation of Primary Medical Colleges by the Australian Medical Council 2012*, 2012, URL: http://www.amc.org.au/files/d0ffcecda9608cf49c66c93a79a4ad549638bea0_original.pdf (visited on 07/12/2016).

[16] See Part 8, Government of New South Wales, *Health Practitioner Regulation National Law (NSW) (2009 No 86a)*, 2009, URL: http://www.legislation.nsw.gov.au/#/view/act/2009/86a (visited on 06/28/2016).

and legally precise, provide for clear demarcation of functions and make provisions for missing links, such as, continuing medical education for doctors. Lastly, a complete overhaul of the regulatory system requires the involvement of the centre and all the state governments.

Cost of compliance for clinical establishments

ajayshahblog.blogspot.in/2017/09/cost-of-compliance-for-clinical.html

by Manya Nayar and Shubho Roy.

The Clinical Establishments (Registration and Regulation) Act, 2010 (Clinical Establishments Act) is facing resistance from the medical fraternity. The Indian Medical Association claims that the law will cause an increase in the cost of treatment and adversely affect small and medium size clinical establishments such as a clinic run by one or a few doctors. The Health Minister for Delhi promised that the law, as drafted by the Planning Commission, will not be implemented in Delhi. On 27th April, 2017, doctors observed `black day', to protest against the law.

Costs and benefits in a sound regulatory process

All regulation creates constraints for private persons. In general, the constrained cost minimisation of private persons will yield an inferior value (i.e. higher cost) when compared with the unconstrained cost minimisation. The question that society must ask is about the extent to which the regulation yields benefits that outweigh the costs.

In a sound regulatory process, this step is built into the regulatory process through administrative law. It is called *Regulatory Impact Analysis (RIA)* or *Cost Benefit Analysis (CBA)*. The formal process of undertaking RIA/CBA is a healthy one for three reasons:

1. The *process* of undertaking the CBA helps policy makers improve thinking about the problem that we seek to solve and the alternative mechanisms that could be adopted.
2. The citizenry obtains greater transparency when the CBA is released. Officials get an opportunity to display expertise in the release of the documents. Transparency and expertise create legitimacy.
3. The public, and all interested parties, are able to modify assumptions and rework the thought process of the regulator. This creates a more informed public debate.

As an example of doing cost-benefit analysis, consider the way the the British Government proposed a regulation requiring clinics to check the English language skills of doctors before he/she is appointed in a clinic. The cost-benefit analysis weighs the costs and benefits of various policy option including the option to do nothing. On the side of costs, the government estimated that 15% of the doctors will be required to take the test, which would cost GBP 132 per test. On the side of benefits, it was estimated that over a period of 10 years, English competence, would prevent:

> *1 death, 2 cases of severe harm and 15 cases of moderate harm...*

The quality adjusted life year was valued at GBP 60,000. The litigation costs arising out of the injuries from poor English knowledge of doctors was estimated to be half of that. These would be savings to society: clinics and patients. The analysis concluded that the costs would be around GBP 0.77 million while total benefits would be GBP 2.01 million (on a net present value basis). As the estimated benefits outweigh the cost, the proposed regulation is justified.

Turning to the Indian context, while the protesters are arguing about the increased costs of treatment under the proposed law, estimates about the financial implications for providers are lacking. Like the Clinical Establishments Act, the Right to Education (RTE) Act also focuses on the provision of inputs and not on outcomes. Most of the requirements under the RTE act impose costs on schools without any demonstration on improved learning outcomes. *Wadhwa (2010)* shows that learning outcomes are not correlated with the school infrastructure, which forms majority of the measures required under the RTE Act. Wadhwa's research shows that

the most significant factor for learning outcomes is *teacher attendance*. Sadly, this is not part of the RTE Act measures. On the other hand there is research to show that complying with the RTE Act, substantially increases the cost of school fees. Centre for Civil Society calculated the compliance cost of RTE in Delhi. They found that due to RTE norms, the average cost per child will go up to INR 2,223 per month from the current fee of INR 322 per month, indicating an increase in average fee by 590% . While some the RTE Act requirements like the need for a 800 sq.m. playgrounds have been relaxed to 200 sq m most of the other input based requirements remain. Muralidharan and Sundararaman (2009) carried out a randomised control trial in five districts of Andhra Pradesh with 500 schools over two years. Teachers were offered a bonus for gain in standardised scores. The authors conclude that teacher performance pay led to significant improvements in student test scores. The results also showed positive spillovers i.e. students further more performed better in subjects for which teachers were not given incentives. However, such measures are yet to be incorporated into the RTE law.

In this article, we estimate the cost of setting up a basic doctor's clinic which complies with the standards under the Clinical Establishments Act.

The standard

The Clinical Establishments Act prescribes standards for health care facilities. It covers pharmacies, dispensaries, clinics, diagnostic centres, and hospitals of various types and sizes. Standards have been made for different types of clinical establishments. The most basic type of clinical establishment under the Act is: *Clinics (only consultation)*. This type covers a simple doctor's clinic. A doctor's clinic is usually the first, and most frequent, point of contact between doctors and patients. While these locations are limited to an interaction with a doctor, a few minor procedures like dressing, administering injections, etc. may be provided. No overnight stay or observation can be carried out in these clinics. The standards for this type of clinic constitute the smallest possible compliance cost under the law. We studied this standards document, *Clinical Establishments Act Standard for Clinic/Polyclinic only Consultation*, in order to estimate the cost of compliance.

Methodology

1. We identified the requirements from the standards document.
2. Made certain assumptions, like location of clinic, consumption of medicines, registration costs, etc.
3. Obtained prices of the items required.
4. Estimated the annual compliance cost.
5. Drew up three scenarios based on assumptions about number of patients visiting each day.
6. Estimated the compliance cost per patient.

Identifying requirements:

The standards document groups the requirements into seven categories:

1. **Infrastructure:** Lays down the minimum floor area for the clinic.
2. **Furniture/fixtures:** Mandates that the clinic have cupboards, tables, observation tables, etc.
3. **Human resource:** Requires that the clinic have at least one support staff person.
4. **Equipment/instruments:** Lists out the medical equipment that a clinic should have.
5. **Medicines:** Requires the clinic to maintain inventor of 13 essential medicines.
6. **Legal/statutory requirements:** Requires the doctor to be registered with the state medical council, the clinic be registered under the Clinical Establishments Act, and comply with environmental laws for disposing biomedical waste.
7. **Record Keeping:** The clinic must keep records of all patients for 3 or 5 years.

Assumptions:

We made the following assumptions:

- **Location:** The clinic is located in Saket, New Delhi.
- **Number of working days:** The clinic is open for 26 days in a month.
- **Resuscitation equipment:** The phrase *resuscitation equipment* in the standard is ambiguous. We assume that the requirements for hospitals would also apply to clinics.

- **Classifying medicines:** We divided the list of medicines into *emergency* and *non-emergency* using *Indian Public Health Standards: Guidelines for Community Health Centres*.
- **Consumption rate of medicines:** We assume that emergency medicines are consumed at the rate of 5 per month and non-emergency medicines, at the rate of 26 per month. These values were chosen through discussions with doctors.
- **Registration cost:** The registration cost under the Clinical Establishments Act is assumed to be Rs.1000, which is generally the case.

Sources of price data: We found furniture and equipment prices from Amazon.in and Industrybuying.com. Rental charges were estimated using Magicbricks.com. The salary of the helper was estimated using Naukri.com. Prices of medicines were obtained from Medindia, MedPlus Mart and Indiamart.

Exclusions: Our estimates are conservative in that the following are not counted:

- Doctor's profit/income
- Cost of keeping medical records
- Water charges
- Cost of board/signage
- Compliance cost under bio-medical waste management laws

Number of users. The compliance costs will be distributed amongst the patients visiting the clinic. This requires assumptions about traffic at the clinic expressed in patients per day. We considered three scenarios: Optimistic (45/day), Realistic (30/day) and Pessimistic (15/day).

Findings

The calculations were made using a spreadsheet that is released to the public.

Table 1 reports the total cost for setting up and running the clinic for two years, and the costs per patient based on our scenarios. In Table 2, we broke the cost down into sub-components to see which part accounts for the largest share.

Table 1: Compliance cost and cost per patient

Expenditure/Scenarios	Year One	Year Two
Compliance cost:		
Capital Expenditure	95,114	27,324
Revenue Expenditure	4,29,640	4,29,640
Total Expenditure (Sum of capital and revenue)	**5,24,754**	**4,56,964**

Cost per patient:		
Pessimistic (15 patients/day)	112	98
Realistic (30 patients/day)	56	49
Optimistic (45 patients/day)	37	33
	Values are in Rs.	

This suggests that the standard may impose a cost of around Rs.50 per patient, under the `Realistic' case. These are significant values when compared with the typical charges at clinics in Delhi.

Table 2: Components of expenditure

Head	**Year One**	**Year Two**
Infrastructure	39.5	45.4
Furniture	6.2	0.6
Human resource	19.4	22.3
Equipment	11.8	5.4
Drugs	22.6	26.0
Legal requirements	0.5	0.3
	Values are in Percentage of total.	

This shows that the cost structure is dominated by what the standard requires in the form of infrastructure.

Our work is incomplete

We have only estimated the costs of the standards. We have no idea of the benefits arising out of these standards. No studies or estimates about either benefits or costs were released by the government as part of the process of drafting the standards. We know that infrastructure costs are important, but we do not know if the size of the waiting room affects the quality of medical care. This requires much more research about the benefits each requirement, like a 35 sq.ft. waiting room, bring to the table.

Conclusion

Regulations impose costs. Costs are passed on to users. When the benefits to users are more than the costs, the regulations may be beneficial. It is not clear that the standards for basic clinics satisfy this criterion. There are no estimates about the benefits that flow from the standards. It is not clear that mandatory staff or minimum waiting area help induce a positive outcome for patients.

Regulations under the Clinical Establishments Act will have consequences on the price of health care in India. In India, an increase in prices of a few per cent can impact upon millions of users. People excluded from trained medical care may use quacks as a substitute. Such substitutions may have negative effects on health outcomes. More work needs to be done before imposing requirements on regulated entities. The government should carry out research and analysis to be satisfied that each word of each law/standard is justified and the benefits

outweigh the costs.

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Concerns about how the Medical Council of India thinks about medical malpractice

ajayshahblog.blogspot.in /2017/07/concerns-about-how-medical-council-of.html

by Shyama Nagarajan and Shubho Roy.

India has approximately 5.2 million medical negligence cases annually. A study for Mumbai showed that medico-legal cases, in courts, against doctors rose from 910 in the period from 1998 and 2006, to 150-200 cases every year.

The responsibility to regulate the medical profession lies with the Medical Council of India: a statutory regulator. However, we get little information about whether or when the Medical Council of India (MCI) disciplines doctors. MCI seems to follow a *moralistic* approach to regulation rather than a *legalistic* approach.

Morals v. Laws

A legal system differs from a moral system in three important ways:

1. *Specificity:* Moral standards are usually generic, and rarely provide clear direction for action, in individual situations. In contrast, legal standards strive to be specific and are cognisant of exceptions to the rule. For example, a moral standard may be a generic statement like: *Thou shalt not kill*. Law, on the other hand, recognises that killing may be justified under many conditions, like defending oneself from a murderous attack, soldiers killing the enemy, an executioner killing the condemned. All of this is codified in various laws justifying killing of another human being in specific circumstances. These have been extensively thought through and developed through legislation and jurisprudence.
2. *Consequences:* Morals statements may prohibit some actions, but rarely have provisions to deal with the consequences of violating them. In contrast, laws focus on consequences of violating proscriptions. For example, a moral principle may be drafted as: *Thou shalt not kill*. The Indian Penal Code, on the other hand, has no statement prohibiting people from committing murder. It states simply: *Whoever commits murder shall be punished with death, or imprisonment for life...*
3. *Enforcement Mechanism:* Modern states do not enforce moral principles. For example, there is no enforcement mechanism for people who violate the commandment:"*Thou shalt not kill*". In contrast, laws are backed by the requisite vast machinery enforcing them. This includes police, judiciary and other supporting laws like law governing trials (Cr.P.C.), evidence, etc.

Medical Code of Ethics

MCI drafted the The Medical Code of Ethics, 2002 ("the Code") to govern medical practitioners. By using the term `ethics', it appeals to a moral principle. However, all aspects of the MCI constitute a legal system under the authority of Parliamentary law (the Medical Council of India Act, 1956). An analysis of a few provisions of the Code shows that while the MCI seems to claim moral authority: It drafts standards in the moral style. Even if it had systems and procedures in place to enforce these standards; the language of the standards would prevent them from being enforced in a legal system.

Let us apply these ideas to reviewing review three parts of the Code, pertaining to medical records, generic drugs and commissions.

Medical Records:

Section 1.3.1: of the Code states:

> *Every physician shall maintain the medical records (sic) pertaining to his/ her indoor patients for a period of 3 years..... in a standard proforma... attached as Appendix 3.*

Appendix 3 expects the doctor to mention: Name of the patient, age, sex, address, occupation, date of 1st visit, clinical note (summary) of the case provisional diagnosis, investigations advised, observations, signature in full, and name of treating physician, etc. The record-keeping obligation on physicians is limited to ``indoor patients'' only. Indoor patients refer to patients in medical establishments (hospitals, nursing homes etc.) for 24 hours or more.

This provision suffers from three defects:

1. *Incomplete coverage:* This provision covers a very small proportion of patients that a doctor examines. It completely excludes the vast majority of interactions (such as, chronic case management and procedures) between doctors and patients, i.e. outpatient visits. There is no obligation to keep records or even record prescriptions in any standard manner for those interactions.
2. *It duplicates work:* Medical establishments (hospital, nursing homes, etc.) are already required to keep records for indoor patients. It makes no sense for individual doctors to duplicate the effort. Doctors admit patients in different hospitals and offer consultations, and make clinical rounds in hospitals seeing scores of patients. Maintaining records for each patient/prescription in person with the doctor (not the medical establishment) is irrational.

The code does not specify how MCI will identify and enforce against non-compliance. Neither through legal instruments associated with the MCI, nor through any other enactments, is there an enforcement apparatus which involves issues such as accepting complaints, carrying out inspections, requiring the submission of operational data, etc.
Section 1.3.4 of the code reads:

> *Efforts shall be made to computerize (sic) medical records for quick retrieval*

This is an exhortation and cannot be enforced.

Generic names of drugs:

This provision is designed to prevent doctors from prescribing *brands* in return for kickbacks from pharma companies. This problem is so endemic that the government proposes to bring a new law to tackle it. The Code has a provision governing this, in Section 1.5:

> *Every physician should prescribe drugs with generic names legibly and preferably in capital letters, and he/she shall ensure that there is a rational prescription and use of drugs.*

This obligation does state a penalty for violation. The code expects that there should be a rational prescription

without any form to verify it. Since there are no standards for how prescriptions have to be written for patients, it is impossible to test compliance. A doctor is not required under the Code to write down the diagnosis. Consequently, it is impossible to verify whether the prescription was rational. There are medical texts and standards in training which specify how a prescription is written. However, the code makes no obligation on doctors to follow them.

Commissions

Kickbacks from pharma companies to doctors have become a major problem in India. In February 2016, the MCI amended the Code to insert a new provision governing payments received by doctors from pharma and medical technology firms: clause 6.8.1 of the MCI code. This provision is very different from the other provisions in the Code. It clearly leans towards a more legal system rather than a moral system:

1. Instead of a general prohibition, commissions have been divided into eight headings: Gifts, travel facilities, hospitality, cash or monetary grants, medical research, maintaining professional autonomy, affiliation, and endorsement.
2. Each heading has a definition of what constitutes violation. An example of this is the heading: *cash or monetary benefits*. While this prohibits receiving money from pharma companies, research grants have been exempted, which could be given to an arm of a hospital.
3. For each type of violation there is a specific penalty. For some, it has been graded depending on the magnitude of the violation. For example, if a doctor receives cash above Rs.1000 and up to Rs.5000 he is liable for *censure*. However, for receiving cash more than Rs.50,000 but up to Rs.100,000, the penalty is removal of the name from the medical register, i.e. barring from practice, for one year.

As with the other areas, these rules are ineffectual as the MCI has no system of tracking such gratification or the administrative machinery required to investigate and penalise violators.

There are grave problems in India about corruption of doctors in prescribing drugs. We need to do much more in defining and enforcing against these practices. One novel mechanism is found in the US. The government requires doctors *and* pharma companies to disclose *any* payments from pharma companies to doctors. There is a website where you can look up your doctor and see what payments he/she has received from the pharmaceutical sector (including medical device manufacturers): *Open Payments Data*. This has spawned other websites which allow users to analyse the data. Dollars for Docs have used the data to rank doctors and pharma companies.

The way forward

The regulation of medical profession requires a clear understanding of general principles of regulation. There have been many attempts to reform the medical profession, the latest being the Niti Aayog draft bill. However, legislative provisions which drive a sound regulatory process under MCI are missing.

Most drafting of law in India is done by amateurs and lawyers. Drafting laws is, however, not trivial. It requires sound thinking in public administration, law, and economics. There is an entire life cycle of a regulatory system which has to be designed in the law. The typical lawyer, who can support a private person on the legal ramifications of a transaction given a certain section of law, is unable to think about what the law *ought* to be.

Every regulatory system must be animated by a clarity of objective. The parent law must provide the objectives that should drive the government apparatus that it constructs. Too often we draft Parliamentary law which lacks objective. For example the objective of the Payments and Settlement Systems Act is:

> *An Act to provide for the regulation and supervision of payment systems in India...*

The lack of objective induces a government apparatus that only pursues political objectives and bureaucratic self-interest. The authors of the law need to write down why the law gives powers to regulate: issues such as safety of transactions, safe payment system, competition, innovation and consumer protection.

After regulations are made through a sound regulation-making process, powers and systems have to be put in place to check for compliance with those regulations. This requires powers to obtain information, inspect and in some cases *investigate*. This requires procedural laws to govern inspections and investigations. It also requires thinking about the State capacity in the regulator. Should a regulator make a law where it has no capacity to check compliance? In health, this problem is compounded by the concept of *doctor patient confidentiality*. As in banking, we need to develop systems by which regulators can check for compliance without breaching the privacy of customers.

There is great value in using statistical analysis rather than case by case analysis. For example, if the incidence of cesarean operations in one hospital is substantially more than another hospital serving a similar population, the regulator should ask questions. Even for individual doctors, *complaint rates* rather than *individual complaints* may help the regulator identify the problem doctors. Such systems require careful recording and classifying complaints, even when they are not investigated.

Every regulatory system needs a quasi-judicial system to penalise or acquit the accused. Penalties should be imposed only after following principles of natural justice and due process. Both patients and the regulator itself should be able to bring complaints and results of investigation before a judicial authority, which is not involved in the investigation. Such an entity should apply some standard of evidence and impose penalties. This requires additional regulations specifying penalties for different types of violations. Penalties have to be proportional to elicit the right response from the regulated. As was known many years ago:

> *Whoever imposes severe punishment becomes repulsive to the people; while he who awards mild punishment becomes contemptible. But whoever imposes punishment as deserved becomes respectable. -- Chanakya ("Arthashastra", I. "Concerning Discipline", Chapter 4).*

All these functions require additional provisions governing accountability and transparency expected of the regulator. Regulatory governance in any field requires substantial amount of legal drafting and two levels: the governing parliamentary law and the subordinate regulations made by the regulator. An example of this is the draft Indian Financial Code. While the code covers the entire financial sector including central banking, 135 out of 414 (32%) of the provisions deal with good governance practices in regulators and tribunals, and are a useful first draft for economic regulation in other fields.

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Sustainable strategy to eliminate vector-borne diseases

ajayshahblog.blogspot.in /2017/02/sustainable-strategy-to-eliminate.html

by Shubho Roy and Smriti Sharma.

In his budget speech of 2017, the Finance Minister Arun Jaitley announced that the government has prepared an action plan to eliminate two vector-borne diseases by the end of this year (Paragraph 64):

> *"Poverty is usually associated with poor health. It is the poor who suffer the maximum from various chronic diseases. Government has therefore prepared an action plan to eliminate Kala-Azar and Filariasis by 2017..."*

Kala Azar, also known as Visceral leishmaniasis, is caused by a protozoan parasite of the *Leishmania* genus. It is carried by an insect vector: *Sandfly*. If left untreated, Kala Azar can lead to the death of the patient.

Filariasis is a painful disfiguring disease which is caused by roundworms of the *Filarioidea* superfamily. It is carried by a mosquito vector: *Culex quinquefasciatus*. The most disturbing symptom is elephantiasis where the patients body parts swell to massive proportions. The infection generally occurs during childhood but manifests itself later in life and can lead to permanent disability.

In this article, we analyse this announcement. We argue that eliminating vector-borne diseases is a good cause for health policy to pursue. However, there is a need to place these actions within a larger strategy on communicable and vector-borne diseases. The critical component of that, which is at present lacking in India, is a sound surveillance system.

Communicable diseases in health policy

A lot of what governments do in the field of health is of dubious value. Tackling communicable diseases, like Kala-Azar and Filariasis, however passes the basic tests of public economics (Hammer, 2015). Communicable diseases involve a market failure, an externality. When one person gets infected, not only does that person suffer, there is the possibility of others getting infected. This is a negative externality. Each person will under-spend on preventing or curing the disease as the individual does not price the adverse impact upon others. This creates a market failure and justifies a role for the State.

In the extreme, when we get to *eradication*, we get to a *public good*. When a communicable disease is eliminated, everyone is protected, even if they did not pay for it. It fits both the tests of a public good:

1. **non-excludable**: it is not possible to prevent consumers who have not paid for it from having access to it. There is no way to ensure that only the people who paid to eliminate Kala Azar don't get Kala Azar and others are still exposed to it.
2. **non-rivalrous**: it may be consumed by one consumer without preventing simultaneous consumption by others. When an infectious disease is eliminated, it cannot come back. Enjoying good health by some persons does not reduce the supply of good health, i.e. absence of the disease.

Why Kala Azar and Filariasis?

But we must ask: Why were Kala Azar and Filariasis prioritised for elimination in the Budget speech?

It is not because they are most widespread diseases in the country. Statistics from the Directorate of National Vector Borne Disease Control Programme (NVBDCP) (Table 1) show that here are other vector-borne diseases like Malaria, Dengue and Chikungunya which are more important.

Table 1: Magnitude of vector-borne diseases in India (2014)

Disease	Cases in 2014	Deaths in 2014
Malaria	1,102,205	562
Dengue	40,571	137
Chikungunya	16,049	Unavailable
Encephalitis (Japanese and Acute)	12,528	2,084
Kala Azar	9,241	11
Filariasis	Unavailable	Unavailable

Perhaps it is felt that these diseases are low hanging fruits. Kala Azar is restricted to four states while other vector borne diseases are everywhere. In 2014, a new drug *liposomal amphotericin* was found to cure Kala Azar with a single dose. Previously, a course of 28 daily doses with hospitalisation was required.In the case of Filariasis, India has reduced the national microfilaria rate (based on sample blood tests) from 1.24% in 2004 to 0.44% in 2014. In Goa, Daman & Diu and Pondicherry, the rates have fallen low enough that mass drug administration (the standard treatment methodology) was stopped in 2012. The government has also achieved good coverage under Mass Drug Administration with 85.6% of the population covered in 2014.

Choosing low hanging fruits has its virtues. It allows for quick results and can potentially help create State capacity. There is a unique charm to *eradication*. Once a communicable disease is eradicated, you do not have to work on it again (apart from some low-level continued surveillance to check for recurrence). This frees up resources for other purposes.

A story of failure

In the recent past, India has seen many outbreaks of re-emerging infections, which were claimed to be eliminated. Kala Azar itself reemerged after near eradication in the 1960s. DDT was used for controlling malaria between 1953-64. This helped to decimate the sand-flies that cause Kala Azar. But the pathogen continued to reside in humans. In 1977, when the sand-flies resurged, Kala Azar resurfaced. The disease again resurged in 1983 and 2003 (Muniaraj, 2014). The National Health Policy of 2002 had envisaged elimination of Kala Azar and Filariasis by 2010. This was postponed to 2015.The plague in Surat in 1994 was followed by an outbreak of pneumonic plague in Himachal Pradesh in 2002 (Joshi et al., 2009). There was another bout of plague in Uttarkashi in 2004 (Mittal et. al., 2004). The first outbreak of Chikungunya in India was reported in 1963 but it resurged after three decades in 2006.

What does it take to finish the job?

It is important to ensure that an elimination drive is sustained beyond its stated date. Vector-borne diseases will not cease to exist with the administration of mass dosage of drugs alone. We need continued disease surveillance and epidemiological investigation post-2017 too. A Kala Azar patient can relapse after six months after the end of treatment. Similarly, Filariasis does not manifest itself in early stages in any outward symptoms. The infected person can thus continue to host the disease for several years.

India is at the cusp of eliminating Kala Azar and Filariasis. It must ensure that the eliminated diseases do not re-emerge. This requires a surveillance system. Surveillance can provide information on *entomological data*, which can help in creating clusters of diseases that can be targeted by similar vector management measures. Surveillance for *epidemiological data* can help in calculating the disease burden attributable to each disease. Lastly, surveillance can provide information on *implementation*. This can help in monitoring and evaluation of disease control and prevention.

Prevention, control and surveillance: current scenario

NVBDCP's present strategy concentrates on vector management by using indoor residual spraying, nets impregnated with insecticides and anti-larval measures. In addition, early diagnosis and complete treatment is provided to afflicted patients. NVBDCP frames technical guidelines and policies to guide States for implementation. Health departments are responsible for the prevention and control of vector-borne diseases at the State level. But their approach to vector-borne diseases continues to be ancillary and ad hoc in absence of entomological and epidemiological data, and data dissemination:

- *Poor entomological surveillance:* The government established 72 zonal Malaria offices to conduct entomological surveillance but only 50% of these are functional. State health departments conduct larval surveys but they do not count adult mosquito populations. The field staff uses the outdated ladle and dip method for studying the vector population, despite the availability of new and improved devices like ovitraps. Vector management efforts employ fogging and anti-larval activities to contain mosquito populations. But, this is done without adequate evidence on vector populations.
- *Poor epidemiological surveillance:* IDSP has a laboratory network of 117 district labs in 28 States/UTs to perform tests for epidemic-prone diseases. Out of the 117 laboratories, 44% of the laboratories do not conduct all the tests recommended under IDSP. This means that some diseases cannot be confirmed and therefore they remain unreported. Private healthcare providers do not report diseases and that leads to under-estimation of the disease incidence. The data for dengue, Kala Azar and Chikungunya on NVBDCP's website is outdated enough to render it useful for public health management. Case and death data for filariasis is unavailable.
- *Poor data collection and dissemination:* The reports from the rural reporting units to District Surveillance Units of IDSP are often delayed. While 85% districts communicate surveillance data through emails, 67% report data through the portal. This leads to delays in collating and analysing data. State health departments campaign, educate and inform the public about the diseases. But, none of the measures taken by State health departments are ever evaluated for their impact.

The information from NVDCP has three groups of problems:

1. *Missing data*: The epidemiological data for some diseases is either incomplete or missing. The missing data on deaths cannot be construed as zero deaths.
2. *Policy decisions without evidence*: India hopes to eliminate Filariasis by the end of 2017. But there is no data on the number of cases and deaths resulting from Filariasis.
3. *Under-estimation of incidence*: The burden of disease is likely to be highly under-stated by the official statistics. As an example, Dhingra et. al., 2010 estimate that Malaria kills between 125,000 and 277,000 persons in India every year. This is vastly unlike the official statistics. Similarly, Haanshus et. al., 2016 find that in the class of hospitalised patients with undifferentiated fever in India, malaria prevalence is as high as 19%. Similarly, Shepard et. al., 2014 estimate there were 5.8 million cases of dengue per year.

Building a surveillance system

A sustainable strategy should bring down the infectious diseases in the short term and avoid resurgence later on. The US Centers for Disease Control and Prevention (CDC) has developed a framework for preventing infectious diseases which focuses on:

- Continued surveillance of infectious diseases, laboratory detection and epidemiological investigation;
- Reducing diseases by developing vaccines, preparing strategies for infection control and treatment;
- Using scientific data to inform health policies to prevent and control infectious diseases.

India requires the development of similar principles. We need a robust surveillance system that measures all vector-borne and communicable diseases. This system should generate a constant stream of good quality data which can feed back into management decisions in public health.

The policy agenda for vector borne diseases involves the following components:

- *Building entomological surveillance capabilities*: State health departments should invest in their entomological surveillance capabilities. They should systematically collect and document changes in vector occurrence, abundance and infection rate for the entire country. State health departments should complement larval surveys with adult surveys. In order to estimate and monitor adult mosquito prevalence, health departments should procure mosquito traps like ovitraps and BG-Sentinel traps (Sivagnaname and Gunasekaran, 2012). State health departments should make the entomological surveys public. For example, the Health Department of New York has launched interactive maps. These maps show the progress made on mosquito surveillance and control operations. The City of Chicago publishes maps with a list of locations and mosquito test results. The CDC displays information on vector borne diseases in maps which also give information on the vectors for each disease.
- *Improving epidemiological surveillance*: The government should assess the disease burden for each vector-borne disease. State health departments collect information on disease incidence and mortality. The epidemiological surveillance should also include information on geographical distribution of the disease and sub-populations affected. This information should be compiled and made publicly available. Better laboratories are required that conduct tests for all the vector-borne diseases.
- *Improving data collection and dissemination*: The government should strengthen data management. The health staff responsible for collecting entomological and epidemiological data should be given electronic devices like tablets or mobile phones. The field staff should enter surveillance data through these digital devices. For example, Kenya moved away from manual data reporting to electronic data reporting for its National Tuberculosis, Leprosy and Lung Disease Programme with an Android based application called TIBU. Florida's Department of Health puts out weekly and annual reports on surveillance. State health departments should also conduct impact analysis on vector control measures. NVBDCP and IDSP should make these studies publicly available to all the stake-holders including other State governments, the private sector and consumers.

Building a generalised and integrated communicable disease management system is laying infrastructure. It can be used for tackling different problems from year to year. Our objective should be to lay this general infrastructure, and not narrowly run campaigns targeting one disease or another.

For an analogy, consider Aadhar. Aadhar is just an identity platform. However, it has been built on robust technology using sound processes. In itself, Aadhar does not do much. However, Aadhar can act as a backbone for multiple initiatives ranging from financial inclusion, rationalising subsidies, targeting delivery of public services, national security, preventing corruption and leakage, etc. It constitutes a general purpose infrastructure which builds a platform on which many specific public services can run.

In similar fashion, a well designed communicable disease management *platform* which leverages technology can be used to deal with kala-azar and filariasis this year, but can be used for malaria, chikungunya and dengue the next year. The same surveillance, monitoring and data dissemination systems will work for multiple diseases. So far, the government has *integrated* the disease surveillance programme, i.e. brought multiple programmes under one umbrella but it has not re-imagined the way it should be carried out.

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The Diwali effect in Delhi air quality

ajayshahblog.blogspot.in /2016/10/the-diwali-effect-in-delhi-air-quality.html

by Dhananjay Ghei, Arjun Gupta and Renuka Sane

As Diwali approaches, we have learned to worry about air quality. Over the last few years, several studies have noted the increase in pollution levels during the period of Diwali owing to increase in commercial activity and firework displays. However, as we show in our previous article, there is considerable variation in PM 2.5 levels in Delhi in terms of location/time/month:

1. **Time Effect**: The effect of diwali is not uniform throughout the day and is more prevelant at particular time of the day than other times. We also need to adjust for the confounding effect of time: pollution levels are high during the night and low during the day.
2. **Location Effect**: Several areas of Delhi are severly polluted throughout the time, whereas others see large variations in their pollution levels. All these reasons make it difficult to attribute the entire increase in PM2.5 on Diwali.
3. **Month Effect**: The day of Diwali Festival varies in the Gregorian Calendar between the 17th October and 15th November every year. Existing pollution levels are already high when compared to the annual average. This is a confounding effect.

It is possible that the bad air that we see in Delhi at the time of Diwali is just the bad air quality in winter, and is not causally impacted upon by Diwali. In this article, we attempt to quantify the increase in the PM 2.5 levels during the Diwali period. Does Diwali have an impact upon air quality? If so, by how much?

Issues in research design

The opportunity to identify a Diwali effect comes from the fact that Diwali is a `moving holiday' which takes place on a different day of each year. If this were not the case, it would be strongly correlated with changing climate.

Our ability to analyse these questions is greatly hampered by the lack of data. As of today, the data only runs from 1/2013 to 10/2016.

The air pollution caused by fireworks includes many contaminants. The data that we are studying covers only pm2.5.

Pollution levels on Diwali

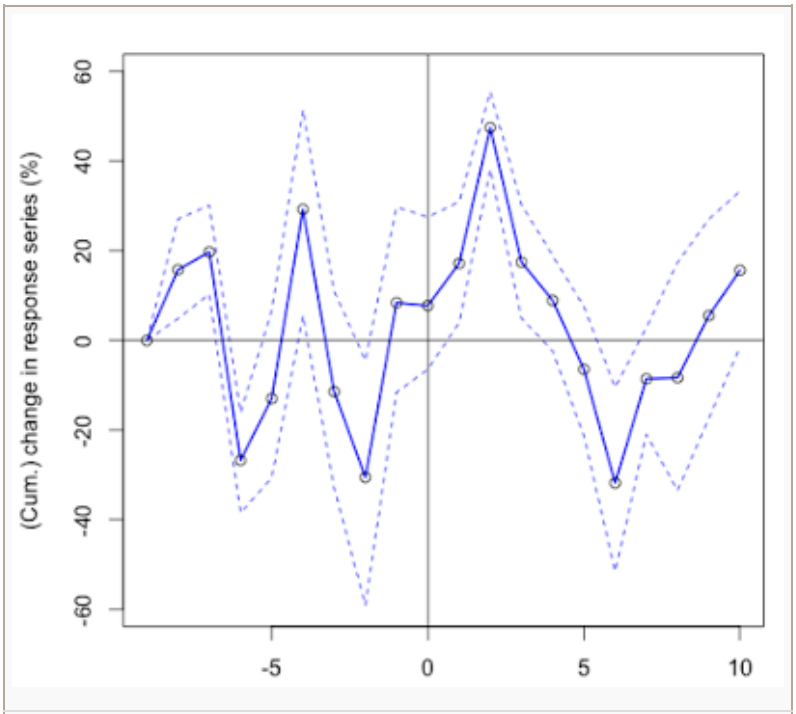
The data used for the analysis comes from the US Consulate based in Chanakyapuri and the Central Pollution Control Board for 4 locations (R K Puram, Punjabi Bagh, Mandir Marg, Anand Vihar). The data consists of hourly PM 2.5 levels across the five locations from January 2013 to October 2016. We winsorise the data at 1% on both ends to remove the extreme tail values.

The effect of Diwali on pollution levels

We first estimate the effect of Diwali on daily data using an event study. We aggregate the hourly concentration of PM2.5, at each location, to arrive at the daily numbers. The day of the Lakshmi Puja is taken as the event day. Therefore, we get 3 events for each location. Next, we calculate the percentage change in PM2.5 concentration levels by differencing the logarithm of PM2.5 values. These are then re-indexed to show the cumulative change over a 20 day window.

The solid line represents the average cumulative percentage change in PM2.5 values during the window, whereas the dashed line represents the confidence intervals calculated using the bootstrapped standard errors. We see that pollution levels start increasing one day before Diwali, and increase till two days after Diwali. It is also interesting to note that the increase in the pollution levels is significant during the two days after Diwali. This can be attributed to the fact that Diwali celebrations begin only on the night of Diwali, thereby leading to a significant increase the next day, as well as Diwali being celebrated over an extended period of time.

We now come at the same set of questions using a regression.



Event study showing the change in PM2.5 around Diwali date (in days)

Contribution of Diwali on PM2.5: Regression analysis

Since Diwali is celebrated over a number of days we also define the following models:

1. Diwali=t: Diwali
2. Diwali={t-1:t+1}: 3 Days (day before Diwali, Diwali, day after Diwali)
3. Diwali={t-1:t+2}: 4 Days (preceding day to two days after Diwali)

The model is as follows:

$$ PM2.5_{it} = \alpha + \beta_1*Diwali_{t}+ \beta_2*Diwali_{t}*l_{i} + m_t + h_t + l_i+\epsilon_{it} $$

where, i is location, and t is time. Here, PM 2.5 is the hourly measured levels of the pollutant. The first model takes Diwali to be only the date of Diwali, second model defines the Diwali days from one day before to one day after and the third model considers Diwali from the preceding day to two days after Diwali. In addition, we have month (m_t), location (l_i), and hour (h_t) fixed effects. The base for the location interaction term is Anand Vihar. Robust standard errors are used for our analysis throughout.

	Dependent variable:		
	Hourly PM2.5 Concentration		
	Diwali=t	Diwali={t-1:t+1}	Diwali={t-1:t+2}
	(1)	(2)	(3)
Diwali	-3.720	98.687	134.709
	t = -0.177	t = 8.496***	t = 13.181***

Chanakyapuri*Diwali	17.270	-75.878	-87.035
	t = 0.638	t = -5.100***	t = -6.692***
Mandir Marg*Diwali	73.078	-67.943	-66.844
	t = 2.606***	t = -4.450***	t = -4.979***
Punjabi Bagh*Diwali	65.630	-49.033	-52.254
	t = 2.374**	t = -3.254***	t = -3.945***
R K Puram*Diwali	63.348	-54.228	-67.094
	t = 2.291**	t = -3.589***	t = -5.055***
Month FE	Yes	Yes	Yes
Location FE	Yes	Yes	Yes
Hour FE	Yes	Yes	Yes
Observations	118,847	118,847	118,847
R^2	0.264	0.264	0.266
Adjusted R^2	0.264	0.264	0.266
F Statistic (df = 39; 118803)	1,091.020***	1,094.274***	1,103.673***

The first model (Column 1) shows that the baseline effect (i.e. at Anand Vihar) is not statistically different from non-Diwali days. For locations, other than Chanakyapuri, there is a differential effect on Diwali relative to Anand Vihar on Diwali. For instance, Diwali adds on an average 69.35 (73.07-3.72) $\mu g/m^3$ PM2.5 particulate matter in air at Mandir Marg relative to Anand Vihar.

When we consider the second (Column 2) and third (Column 3) specifications, there is a statistically significant effect in Anand Vihar. The average particulate matter is 99 $\mu g/m^3$ higher when we consider a two day Diwali, and 135 $\mu g/m^3$ when we consider a three day Diwali period. While this may not seem much, given the already degraded air quality during these months, Diwali makes the pollution level reach alarming levels (>400, the monthly average in October November is around 340) which can have severe impacts on the health of people.

The Diwali effect is lower in other other locations relative to Anand Vihar. Thus, we see, that on the main day of Diwali, Anand Vihar is not too different from other days, while other locations have more pollutants relative to Anand Vihar. However, once we take into account 1-2 days after Diwali, we see that Anand Vihar is the most polluted location, and other locations have lower pollutants relative to Anand Vihar.

Conclusion

Very little is known, at present, about air quality and Diwali. Using the admittedly weak data resources, we have begun analysing this question here.

To the extent that these results are persuasive, they could help individuals plan strategies to avoid being in Delhi on these days. There is also a case for a Pigouvian tax on fireworks, in order to overcome the externality.

Previous work on Diwali, which helps us see other dimensions of Diwali, includes: *Seasonal adjustment with Indian data: how big are the gains and how to do it* by Rudrani Bhattacharya, Radhika Pandey, Ila Patnaik, Ajay Shah, and *IEDs in Diwali and Toxic chemicals in Holi* by Ajay Shah.

Describing Delhi's air quality crisis

ajayshahblog.blogspot.in /2016/10/describing-delhis-air-quality-crisis.html

by Dhananjay Ghei, Arjun Gupta and Renuka Sane.

One of the most important elements of public health is regulatory interventions that yield clean air. In late 2016, we await the air quality crisis of the Delhi winter with trepidation. A few attempts at solving the problem have begun. The Government of Delhi experimented with an odd-even policy to regulate traffic between 1 January 2016 to 15 January 2016, and then between 15 April 2016 to 22 April 2016. The results of these experiments have been mixed [here and here].

What you measure is what you can manage. Only when we are able to marshal evidence in a systematic way about the extent and nature of the problem, will we be able to design and deliver a response. The measurement of air pollution in Delhi has begun on a small scale. In this post, we describe patterns seen in the available data.

Why is PM 2.5 a good measure?

There are many pollutants in the air such as carbon monoxide (CO), nitric oxide (NO), nitrogen dioxide (NO2), ozone (O3). The worst among these is small particulate matter, or PM 2.5, which are a mixture of solid and liquid droplets floating in the air whose diameters are less than 2.5 micrometers. These fine particles are produced from all types of combustion, including motor vehicles and power plants and some industrial processes.

The health impact from pollution is a complex transform of exposure to all pollutants. However, of the pollutants, PM 2.5 particles are considered the most harmful as they are able to enter deep into the respiratory tract, reaching the lungs. This can cause short-term health effects such as eye, nose, throat and lung irritation, coughing, sneezing, runny nose and shortness of breath, and in the long-term can affect lung function and worsen medical conditions such as asthma and heart disease. We, therefore, narrow our attention to the measure of PM 2.5. The unit of measurement of PM 2.5 is $\mu g/m^3$ and the breakpoints of raw PM 2.5 values by the US Environmental Protection Agency are the following:

24-hr PM 2.5	AQI Categories	Health Effects Statements
0.0-12.0	Good	None
12.1-35.4	Moderate	Respiratory symptoms possible in unusually sensitive individuals, possible aggravation of heart or lung disease in people with cardiopulmonary and older adults.
35.5-55.4	Unhealthy for Sensitive Groups	Increasing likelihood of respiratory symptoms in sensitive individuals, aggravation of heart or lung disease and premature mortality in people with cardiopulmonary disease and older adults.
55.5-150.4	Unhealthy	Increased aggravation of heart or lung disease and premature mortality in people with cardiopulmonary disease and older adults; increased respiratory effects in general population.
150.5-250.4	Very Unhealthy	Significant aggravation of heart or lung disease and premature mortality in people with cardiopulmonary disease and older adults; significant increase in respiratory effects in general population

250.5-500	Hazardous	Serious aggravation of heart or lung disease and prematuremortality in people with cardiopulmonary disease and older adults; serious risk of respiratory effects in general population.

Data

We fetch raw PM 2.5 values from two data sources on pollution in Delhi. The first is put out by the US Embassy based in Chanakyapuri. In addition, the Central Pollution Control Board also puts out real time data for various locations across India. We select 4 locations which provided us with the most consistent dataset. This gives us a total of 5 locations for which we have data:

1. R K Puram
2. Punjabi Bagh
3. Mandir Marg
4. US Embassy (Chanakyapuri)
5. Anand Vihar

We use hourly data from the locations mentioned above for a time period from January 2013 to October 2016. It should be noted that values are missing from certain sections of the data. These missing observations are excluded from our analysis.

Drawing upon the Chinese experience, it's interesting to ask: Do the Indian government sources tally with the US Embassy data? We can't say, as there is no measurement for a location near the US Embassy by the CPCB.

Dimensions of variation

These are three types variations seen in PM 2.5.

Figure 1: Variation by time of day

Time Effect: Figure 1 above shows the variation in hourly pollution levels during different days of a week. Darker colors represent increased PM 2.5 matter in the air. We see that the pollution levels are low during the

day, but start increasing post 6 p.m. and remain elevated till 9 a.m. of the next day. The average PM 2.5 concentration from 6 p.m. to 9 a.m. is 140 μg/m^3, whereas the average PM 2.5 concentration from 9 a.m. to 6p.m. is 108 μg/m^3. PM 2.5 levels in the range of 101-200 can cause breathing discomfort to anyone with prolonged exposure to the air during these times. This graph suggests that a measure that restricts traffic during the day such as the odd-even policy is unlikely to be as effective as a measure that restricts emissions at night.

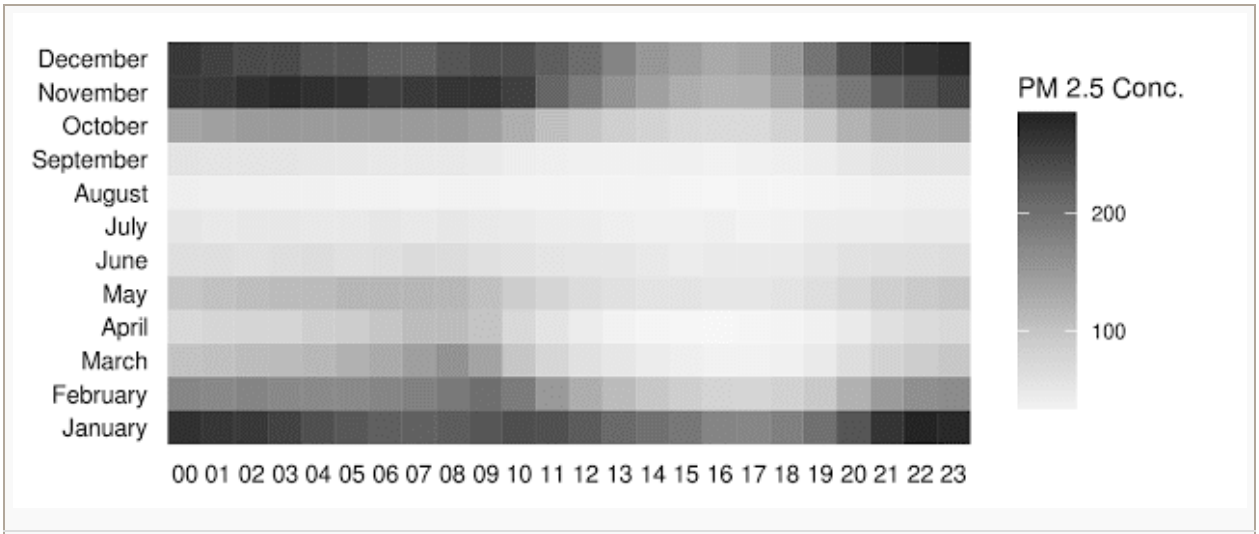


Figure 2: Variation by month

Month Effect : Figure 2 shows the hourly variation in pollution levels during different months of the year. Note that the scale for this figure is different from that used in Figure 1. The monsoon months have the lowest levels of PM 2.5 particulate matter. Larger particles are settled in few hours due to gravity, but smaller particles such as PM 2.5 are removed by precipitation. Winters have the highest levels of PM2.5 matter in the air, on account of low wind speed and high relative humidity. PM 2.5 concentration reaches above 200 in the winter months, which can cause respiratory illness to people on prolonged exposure and puts people with respiratory illness, and heart disease on a far greater risk.

Figure 3: Variation by location

Location Effect: Figure 3 shows the hourly variation in pollution levels at the five locations where instruments are available. Chanakyapuri seems to perform better than other areas of Delhi, in terms of PM 2.5 particulate matter. Anand Vihar has the highest pollution levels amongst the 5 different locations, and has severe levels of air pollution in the night. This can cause respiratory impact even on healthy people, and serious health impacts on people with lung/heart diseases.

Thus, we see that there is a strong location effect on pollution levels. This can be due to the varying population densities of these locations as well as the proximity to industries etc. This could lead to location-specific policy

initiatives such as closing down factories or modifying vehicular traffic.

Reproducible research

Data and R code.

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Dengue should be prevented and not merely tackled when the epidemic sets in

Indian Express, 30th July 2016

In India, prevention of dengue is left largely to households, while the government offers a cure. (Source: Illustration by C R Sasikumar)

As hoardings across Delhi indicate, we are waiting for a dengue outbreak. Aedes aegypti, the mosquito that carries dengue, is also the carrier of zika - and chikungunya. Just as in case of dengue, India will offer a fertile ground for zika - the deadly virus that deforms babies when it infects pregnant women.

The eggs of the aedes aegypti survive the Delhi cold, the heat and the dryness for more than a year. When the right temperature and moisture conditions come in late summer and during the monsoons, they hatch. The larvae live in freshwater in tanks, ditches, pots and planters all around us. Eggs laid by an infected female mosquito carry the infection. Soon the Delhi air will be thick with dengue-infected mosquitoes. Dengue cases will be on the rise till October.

It is not as if the problem or the solutions are not known. Countries across the world, including poor ones, have attacked the aedes aegypti. Communication campaigns about cleanliness, insecticide-laced mosquito nets and repellents, while important, are not enough. This is particularly so in the case of dense urban communities. The adult mosquitoes fly up to 400 meters. No single household will bear the cost of cleaning all containers and treating water tanks and coolers in its vicinity. Communication is often inadequate as a strategy. For example, it is advised that all water tanks be emptied, cleaned and refilled every week. How many households, given the water situation in Delhi, will be willing to empty out their tanks every week? If your neighbour does not kill the larvae in her tank, you can be infected with dengue. If you live in a student hostel, there is little that you can do. In other words, the prevention of dengue is a public good; it has externalities.

Experts emphasise government intervention and a multi-pronged attack on the aedes aegypti. Fogging is not enough as it attacks adult mosquitoes and not the larvae. Everyday now, larvae will be turning into pupae and then into adults. You cannot do fogging every day, nor is it safe or economical to do so. One important line of attack is to kill the larvae before they develop into mosquitoes.

Internationally, one of the most important interventions for dengue control has been larvicide or killing the larvae in various water bodies. Even if one imagined that somebody would do all this personally to prevent dengue, it is hard to imagine that people would allow someone to walk into their houses and put chemicals into their overhead tanks. That would not be safe as well. For instance, the dosage of temefos, a WHO-approved larvicide that can be added to potable water, must not exceed certain levels.

Clearly government intervention is required. Community participation is required, but preventing dengue cannot be left to communities. Governments need to have a strategy after studying the pattern of the disease and examining ways of attacking it. The prevention of vector borne diseases has been a clear case of intervention in public health all over the world.

In India, prevention of dengue is left largely to households, while the government offers a cure. It offers tests and hospital beds, a strategy that is not only insensitive when compared with the benefits of a public health prevention strategy, but also costly. A number of studies across the world have shown that intervention by governments through a strategy of prevention is cheaper compared to the government paying for the costs of tests and hospitalisation.

Unfortunately, the Indian health establishment's prime focus has been on healthcare. There is an attitude of letting people get sick, and then thinking about how to setup healthcare facilities to treat them. From a public finance point of view, however, it is much better to engage in traditional public health interventions which emphasise public goods. In this case, the critical public health interventions are focused on mosquitoes.

We don't need to wait for newspaper stories about people dying of dengue in order to know that the epidemic of October is on its way. We will get a surge in October 2016. The time to act on these is now, and actions should be grounded in public health and not in healthcare. Unsystematic fogging or only cleaning riverbanks is not going to be enough. It is necessary to embark on comprehensive public health initiatives in July, instead of waiting till October and trying to deal with a surge of sick people using a creaking healthcare system.

Public health today barely accounts for 10 to 20 per cent of most state governments' expenditure on health. Healthcare accounts for 80 per cent to 90 per cent of such expenditure. From a financial point of view, however, healthcare is very inefficient when compared with public health. The effectiveness of public expenditure is dramatically superior when money is spent on well managed public health programmes as compared with spending money on well-managed healthcare. But public health requires a different set of skills. In the example of dengue, attacking mosquitoes requires the state to manage hundreds of health workers walking over every square metre of the area. Public health requires management skills to handle large forces of field workers who perform simple actions reliably. As part of the degradation of the India's state capacity in recent decades, we have become pessimistic about our abilities in public health. In despair, we have emphasised healthcare.

There are epidemics that ambush us, and there are epidemics that we can foretell. North India will have an epidemic of dengue fever in October 2016, as it does every year. The question is: Will we able to rouse ourselves, and have public health interventions ahead of time?

(This article first appeared in the print edition under the headline "Public health, not healthcare")

Back up to Ila Patnaik's media page
Back up to Ila Patnaik's home page

Problems of the Health Management Information System (HMIS): the experience of Haryana

ajayshahblog.blogspot.in /2016/06/problems-of-health-management.html

by Smriti Sharma.

Last year during a "Beti bachao, Beti badhao" video conference, errors in the data became visible. The `Maternal Infant Death Review System' (MIDRS) of Haryana showed that the health staff in some districts of Haryana had been grossly under-reporting deaths of mothers and infants. As an example, for the trimester of April-June 2015, the number of infant deaths measured in the MIDRS was 3,307, but only 728 were reported into in the Health Management Information System (HMIS). For maternal deaths, HMIS showed 21 deaths while MIDRS showed 145.

MIDRS is a surveillance-based system which was launched by the Haryana government in 2013 to keep tabs on such under-reporting. The system includes a mixture of routine passive data collection and active surveillance by specially recruited and trained field volunteers. Ironically, HMIS too was conceived as a mechanism to monitor the functioning of the National Health Mission (NHM).

Inaccurate data in HMIS raises concerns about the working of NHM. In this article, we take a close look at the HMIS in Haryana and understand the sources of difficulties.

HMIS: A management tool for National Health Mission

The Indian government launched the `National Rural Health Mission' in 2005. This was renamed as the `National Health Mission' (NHM). HMIS was intended as a management information system to oversee the working of NHM. NHM is a national mission that runs through the length and breadth of the country. There are approximately 1.8 lakh health facilities that make use of HMIS to capture data.

HMIS captures data about antenatal coverage, immunisation coverage, delivery services, family planning coverage indicators etc. Some states like Haryana used another system called DHIS for data collection at the State level. These systems remained in operation, but their data was uploaded into HMIS to achieve comprehensive information in HMIS.

Substantial public expenditures are taking place through NHM. For NHM to work effectively, HMIS must be sound. Hence, the reports about errors in HMIS are particularly alarming. If HMIS contains faulty information, there may be substantial failures in the working of NHM. This motivates HMIS as the object of study.

How does HMIS collect data?

Figure 1 shows how data flows into HMIS. The Indian public sector health system has multiple tiers, where the first point of contact between the community and the health system is the sub-centre where the most peripheral health services are provided. Here at the sub-centre, when a pregnant woman walks in, an auxiliary nurse & midwife (ANM) jots down her details into her register.

The ANMs at the sub-centre level do not have access to computers and have to record information in handmade registers. ANMs maintain multiple registers and carry all of them every month to the relevant Primary Health Centre where the information from their registers are transferred onto the DHIS (in Haryana) by a Data Entry Operator.

Figure 1 also shows the different levels at which the data is aggregated. Data from the sub-centre, primary health centres and community health centres is aggregated at the block level. The data sent from the block level

and sub-district hospital and district hospital is aggregated at the District Headquarters. The District Headquarters then sends the aggregated data to the State Headquarters which forwards it to the national level.

Issues of data quality

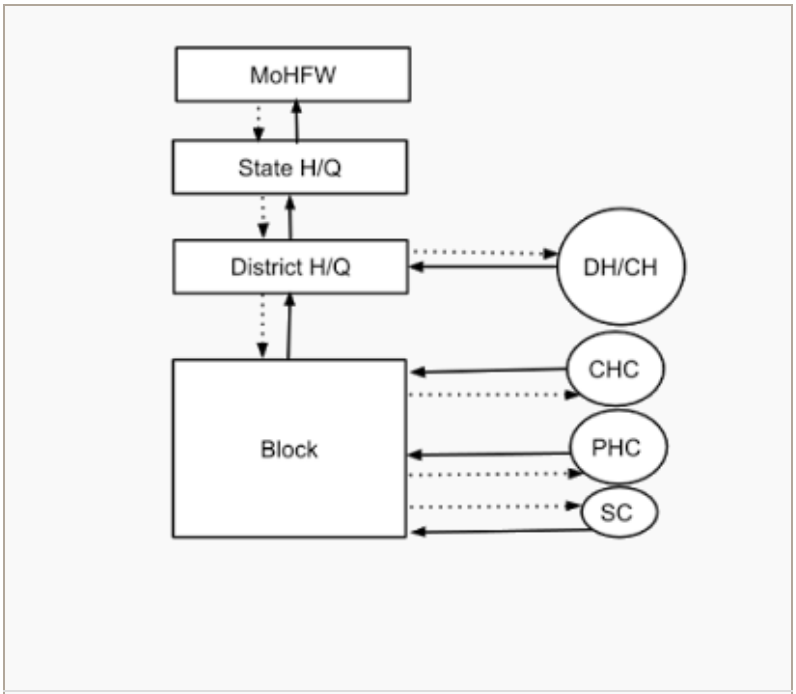

Figure 1: Data flows in HMIS

Numerous concerns have been raised about the quality of the data. Singh et. al., 2014, found that many districts in Haryana were routinely over-reporting data. For example in Palwal district:

- ANC registrations were 47% higher than the total number of expected deliveries. Expected deliveries refer to the probable number of pregnancies which is calculated by multiplying the total population of the area by the birth rate.
- Reported deliveries were 11% higher than the expected deliveries.
- Measles vaccines administered were 16% higher than the number of reported live births.
- Overall, only one district (out of the 21 districts in Haryana) did not have reported occurrence (eg. immunisation rates, deliveries, children weighed) higher than the total population.

In a recent paper, Sharma et. al., 2016, found that the ANMs over-recorded the following two indicators the most:

- 3 or more Antenatal Care (ANC) visits by pregnant women
- Provision of 100 or more Iron/Folic Acid (IFA) tablets

When the ANMs reported the data for monthly submission, the data they inflated the most pertained to:

- IFA supplementation
- Contraceptive device insertions
- Administration of 2nd dose of Tetanus Toxoid (TT) to pregnant women

The authors find that data were over reported because it was known to the health staff that these particular indicators were crucial to the success of the program. Numbers were inflated when the actual coverage of service delivery of a sub centre was low; inflating the data helped to hide low performance.

Going by IPHS Guidelines, it is the responsibility of ANMs to register pregnant women and provide at least four antenatal check ups to pregnant women. They are also responsible for administering IFA tablets. We may conjecture that by inflating these indicators, ANMs were making their performance look better than it was.

Reasons for bad data quality

Why is the quality of data so bad?

Lack of capacity

HMIS was launched in 2008, but as yet, computers and the internet have not reached down the entire chain. There are two chronic problems:

- *Lack of infrastructure*: Data entry at the sub-centre level is by ANMs writing into physical registers. There are bound to be errors at this level because ANMs record data in handmade registers which are very badly designed. These registers sometimes do not have enough space available to write. Also, handmade registers do not necessarily capture all information that is necessary for the DHIS.
- *Over-burdened manpower*: At the PHC level, the Data Entry Operator is responsible for entering data for DHIS. Alongside, she is responsible for fulfilling several other reporting requirements too. For example, there is another health information system called Mother and Child Tracking System (MCTS). This too has its parallel reporting requirements and the Data Entry Operator has to report data for MCTS too. Similarly, the Data Entry Operator has to undertake data entry of immunisation report, vaccine and logistics, release and logbook data.

Lack of accountability

We spoke with the personnel at all levels of HMIS in Haryana. We were told that data errors happen, and are verbally pointed out over telephone calls. Those numbers are then corrected and re-submitted. There is a casual, informal camaraderie between Data Entry Operators and the Monitoring and Evaluation Officer. They all seem to sympathise with each other and have a shared belief that they are over-burdened, which justifies human errors. This situation is not unique to Haryana. According to National Health System Resource Centre's assessment of HMIS in 23 states, 72% of the states give feedback to the districts on the HMIS data. Out of these, 61% give feedback to blocks. However, the feedback is given verbally. Only 38% of the states give feedback via emails or letters. The assessment also showed that the feedback is used to manipulate data and not to improve quality.

The way forward

What you measure is what you can manage. The fact that HMIS has poor measurement raises important concerns about NHM. It is hard to see how NHM can effectively generate bang for the buck when it is grounded in an inaccurate management information system.

While duplication of data reporting is inefficient and a source of discrepencies in data, there are multiple databases which have health related data. These include District-level Household Survey, National Family Health Survey, Annual Health Survey and the Mother and Child Tracking System (which follows each individual mother and child). These should be used on a regular basis to cross-check the information in HMIS, so as to uncover data problems sooner.

The movement of aggregated data betrays IT systems design that is many decades out of date. In a modern IT system that would be constructed today, only transactions would be stored (e.g. one death). All aggregation would be done on the fly when queries are required.

Some early steps towards true business process engineering are easy to envisage. An online application called ANMOL or ANM Online, allows ANMs to use tablets to enter and update the service records of the beneficiaries on real time basis. Since the entire process is digital, the ANMs don't have to carry or maintain the registers and the entire process becomes paperless for them.

The problems of HMIS and NHM are primarily a question of incentives and public administration, and not about computer technology. For a counterpoint, in the 18th century, the recording of deaths in the US and in Europe was being done correctly. It does not require great technology to do these basic things.

Too often in India, there is a temptation to solve problems of public policy with computer technology. As argued in Shah, 2006, these projects must be located around two elements: of doing a full blown business process re-engineering, BPR, (i.e. not a superficial layer of computers on top of the old process), and of removing discretion with front line staff.

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The case for Universal Health Care is weak

ajayshahblog.blogspot.in /2015/07/the-case-for-universal-health-care-is.html

by Jeffrey S. Hammer.

For years I've been saying "the 'conventional wisdom' in the field of international (or 'global') health is so weirdly innocent of elementary economics that no real economist who has thought about it at all could possibly support it." By 'conventional wisdom' I'd include all unconditional talk of free curative primary care. Well, recent events have proved me as wrong as it is possible to be.

In a recent Lancet article (OK, that's a clue), Dean Jamison (no surprise there) is lead author of a paper reporting on the conclusions of a committee chaired by Larry Summers that included Kenneth Arrow and George Akerlof. It is the same old sh…stuff that unconditionally calls on every country, no matter what their circumstances, to commit to Universal Health Care where such a commitment must imply free curative primary care. It is no longer tenable for me to contend that no 'real' economist would say such a thing after thinking about it since we are now talking about two Nobel Prize winners and Summers after having being on a committee dealing with that very topic. So, the argument has to be made explicitly to let people think this through for themselves.

My argument can be boiled down into two parts which I will elaborate below. The first is "*public policy – using the very scarce resources that poor countries have available - should first address those problems where market failures create the largest welfare losses. These losses include those resulting from an unfair distribution of income or well-being that a free market could produce.*" That came straight out of the public economics (actually introductory) textbook I had as an undergraduate. Or, to quote Keynes: "*The important thing for government is not to do things which individuals are doing already, and to do them a little better or a little worse; but to do those things which at present are not done at all*."

This could be simplified as "*Do public goods before private goods*."

The second part of the argument could be simplified to "*Do things you are capable of doing before trying things you're not.*"

This is a minor, realistic, modification to public economics and is just to take the constraints on government policy seriously – both administrative and political – if such constraints will interfere with getting the policy done at all. Implementation matters. This is just common sense but it does involve some not-so-easy, if common, considerations. Politics is something I usually just rule out of bounds of my expertise but in justifying spending money (no matter how badly) in public health I regularly hear "*oh, well, the money will come out of defense so it has no real opportunity cost*." No. It won't. Or, you'd better be sure before you start.

On the administrative side: some policies are relatively easy – they can be done with the stroke of a pen or with easily written and monitored contracts. Monetary authorities can buy government bonds; most governments can get a road built (yeah, I know, that's not always so straightforward either). Other policies are really hard. Monitoring CO2 emissions from fixed-point locations (let alone cars), identifying and updating lists of poor people, making sure school teachers are child-centric and, of course, making sure primary health care providers show up for work and apply some due diligence to their job. Some of these are really, really hard. Governments should know their own capabilities and promise those things they know they can follow through on before making promises that can't be kept.

Good public policy has to make choices based on both considerations. Given different circumstances as far as the epidemiological profile of countries are concerned as well as substantial differences in the capacity of their governments (both of which – epidemiological profiles and government capacity - change), it is impossible to predict, before a careful analysis, which set of policies would be appropriate in which circumstance at any particular point in time. Some governments might be able to get regulation or infrastructure done well, others might have an advantage on health or education (Cuba or Iran come to mind). There is no reason to believe that

all governments are equally well prepared to handle all possible public tasks. However, when “universal health care” is advocated irrespective of country circumstances, its very “universality” runs counter to this commonsensical approach.

From my perspective, two gigantic market failures characterise health markets (and problems) in poor countries. The first is the continued existence of communicable diseases many of which are combated by true public goods (or close enough). Traditional, 19th century public health problems of water, sanitation and pest (vector) control and a few immunisations were handled (or were acknowledged that they should be handled) by public authorities since the germ theory of disease was discovered. Many of these are still not done in poor countries (who now have a few more effective immunisations to work with).

I work a lot in India. Open defecation in India is a massive problem, currently being documented at length by researchers. Let me call attention to the Research Institute for Compassionate Economics in Delhi for this. The lack of sewers and sewage treatment in rapidly growing cities threatens the world with catastrophes that make Dickens’ London look benign. Can we pretend we don’t know what to do about this problem, at least in urban area? Can we pretend that money for such immediate demands will not be compromised if more money is to go to medical care? At least in some countries? Without being sure that there is no tradeoff with primary care in a country’s budget (I can attest there is such a tradeoff in India) – the “universal” part of universal health care is … irresponsible at best.

The second gigantic market failure in health is the universal (I admit – this one could be universal) failure of health insurance markets. This I learned from Professor Arrow in his 1963 paper. But what kind of health problem is most compromised when insurance markets fail, the inexpensive kind (handled in primary care centers) or the expensive kind (handled in hospitals)? I would leave this as a rhetorical question but in order to not be misinterpreted, the answer is “expensive”. (There is a specious argument going around that lots of badly diagnosed problems at primary centers lead to large overall expenditures. This is specious on the policy front since much of this mis-diagnosis is done at public facilities. At least in many countries I know of. In any case, this “depends” and needs to be examined in context before universal statements are made about it.)

So, on conventional economic grounds, there is a very good argument for government intervention on public goods and on the risk/ insurance/ hospital set of problems. Not prima facie on primary health care (medical, curative) that is implied by “universality”. Whether health care is particularly important for poor people (not from protection from risk – that falls into the insurance problem that everyone faces) must be evaluated against everything else governments might do to rectify an unfair distribution of income. Health care is not an obvious choice in comparison to food, for example, or unconditional cash transfers. I will elaborate in another post.

On grounds of the variable degree of difficulty of administering different public policies, this can’t be constant across countries and can’t be assumed to justify publicly provided or insured primary care. From evidence that money often fails to reach clinics (Gauthier and Wane) to absenteeism (Kremer et al, Chaudhury et al)) to poor quality care (Das and Hammer, Das et al) to substitution with large private sectors (sorry, cross effects, of prices or distance, of public and private sectors are really hard to pin down and largely unknown but often suspected to be large since people shop around for both (Filmer et al, Leonard)) makes the net impact of public efforts to provide primary care very doubtful in general and, in any case, questionable frequently enough to make advocacy of universal provision … irresponsible at best.

In future posts I will elaborate on the distributional effect of public spending on health, on the track record of primary care provision and on the challenges of correcting insurance market failures mostly from a public administration/ public capacity perspective. For now I just want to flag the point that advocacy of a single policy prescription for every country of something that is questionable for each of those countries is… irresponsible at best.