

Seminar:
**Excessive Utilisation and
Supplier Induced Demand**



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Summary of conclusions

- The analyses and recommendations for SID are completely divorced from the theories of SID.
- The Provisional Report (PR) provides **no** evidence of supply induced demand (SID) or SID driving expenditures.
- The HMI SID regression is fundamentally flawed due to numerous sources of bias and should be disregarded
 - Neither it nor the analyses submitted by third parties demonstrates that an increase in bed capacity causes claimed **excessive** increases in admissions.
- The SID regression, as flawed as it is, finds only a **miniscule relationship** between beds and admissions
- **No link to concentration**

HMI's SID bed theory lacks foundation and confuses causes

- Distinct issues: physician SID, hospital SID, and unnecessary utilisation
- Literature and HMI agree that SID is fundamentally physician-driven
 - HMI: Facilities rarely can “advocate for extra medical services.”
- The HMI speculates that physicians unnecessarily refer patients to hospitals for own financial gain – effectively asserting “conscious or unconscious” unethical behaviour.
 - HMI has offered no evidence supporting contention that physicians have a perverse incentive or its extent.
- There is no basis provided that hospital *expansion* increases physicians’ incentives to increase unnecessary admissions.

HMI: Supply-induced demand is a physician phenomenon

- In the preliminary study of SID conducted by the HMI in 2015:

“In our search, the literature defined supplier induced demand strictly as it relates to physicians and the servicing of patients.”

“For the Inquiry, assessing the presence of enabling factors that may influence **physician behaviour** in the South African private healthcare sector is an important part of the process...”

“SID is generally defined in the context of ‘physicians’ being the service providers and how they can influence a patient’s preferences and decisions regarding health service use.”

“We identified nothing as applied to facilities and suppliers.”

Source: Towards an understanding of supplier induced demand (SID): Practitioners. Revised 9 September 2015. Provided September 2018.

HMI's SID analysis is narrow and limited

- The HMI theory of **hospital-induced demand** suggests numerous measurable effects which HMI makes no attempt to measure.
- The HMI did not make any attempt to distinguish the core factor needing scrutiny – unnecessary utilisation.
 - **HMI: SID is “provision of services without a commensurate improvement in outcomes.”**
 - **HMI: “These [outcome indicators] are not available in South Africa.”**
- The HMI chose to limit analysis to a single “effect” that could just as easily be a cause
 - HMI concedes discretionary specialties don't show evidence of SID.
- The HMI chose not to base its analysis on any of the 9 published studies identified in its methodology paper.

Utilisation and capacity trends

Increases in utilisation already explained by other factors

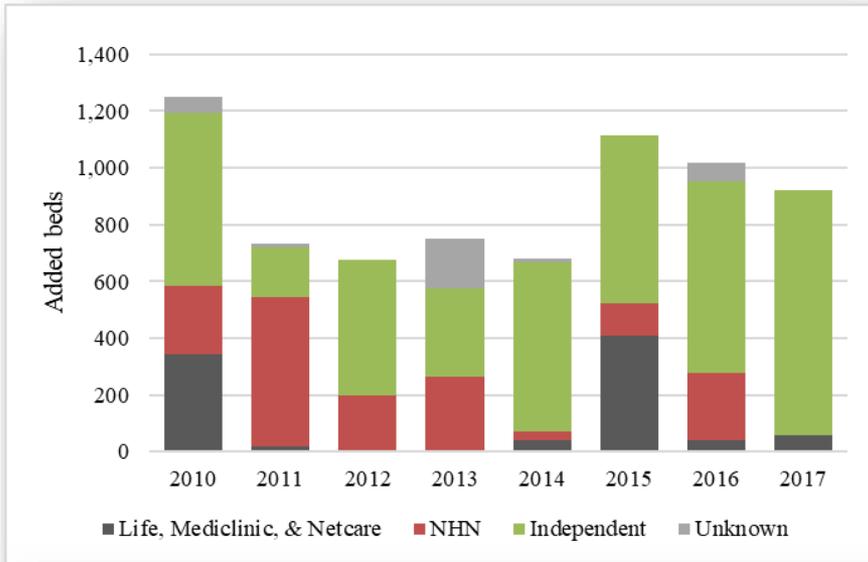
- Using the broad disease burden, which most parties consider to be more appropriate*, explains almost all of the increase in admissions.
- It is undeniable that broad disease burden explains almost all of the remaining increase in admissions.
- The HMI implies, **with no supporting evidence**, that a hospital's coding of a patient's diagnosis is overstated.
- Funders reject accounts not appropriately coded and periodically engage in coding audits.

Average change in admission rates (2010-2014)	Narrow disease burden	Broad disease burden
Total change	2.17%	2.17%
Explanatory Factors	0.99%	2.04%
Unexplained Factors	1.19%	0.14%

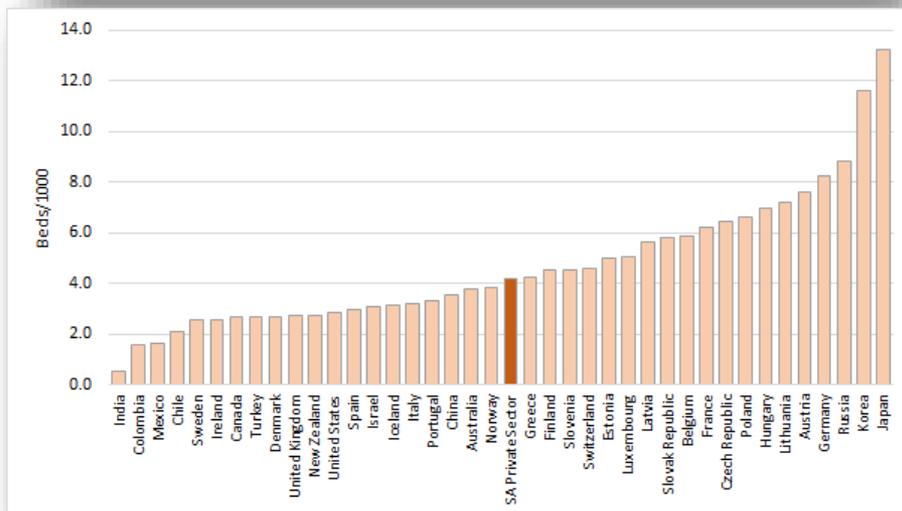
Provisional Report - Table 6.12

*"Summary of and Responses to Issues Raised in Submissions on Expenditure Analysis Reports." September 2018. p. 22.

Supply of beds is not excessive



- Majority of bed expansion has been driven by NHN and independents (HMI data, Medscheme)



- The number of beds per beneficiary in South Africa is not excessive and is close to the OECD country norm.

Critique of SID analyses

SID analyses should be disregarded based on statistical flaws

- **Fundamental econometric issues render SID regression results meaningless, biased, unreliable.**
- **Simultaneity – hospitals add beds where demand is greater more likely and vice versa.**
 - Because the probability of admission affects the number of beds (an area where people are more likely to go to the hospital will lead to hospitals increasing number of beds), the approach used cannot distinguish this effect from the reverse.
 - The HMI attempts to reframe this as arguing that there is a “historic undersupply”, but in fact it is most likely from contemporaneous and constant changes in both supply and demand.
- **Autocorrelation – the unexplained drivers of admission violate a statistical prerequisite**
 - Because the same municipality is treated as a different municipality for every year, any excluded factors that affect probability of admission will be correlated across years. This causes biased estimates. **Not addressed by HMI**
- **Omitted variables – variables** that explain admission probability that are excluded affect the estimates of the variables that are included. (Income and proximity to practitioners)
- First issue would require new data and analysis to address.
- **Addressing the second and third issues negates the effect reported by the HMI.**
 - **Contrary to the HMI’s April 5 note, adding fixed effects to address these issues does not create an issue of collinearity.**

SID analyses should be disregarded based on flawed data

- SID analysis used broader set of hospitals than concentration analysis.
- Only 2010 and 2014 had actual bed data.
 - 2011-2013 were synthetic numbers. For hospitals built in this period, the HMI assumes that the hospital has the same number of beds when opening as it did in 2014.
 - Some entry years and affiliations are incorrect
 - **Comparisons show that interpolation method produces incorrect bed counts 50% of the time – this is unacceptable error.**
- **These assumptions produce biased results.**
- 18.6% of observations were not matched to municipality and were assigned zero beds.
 - **Necessarily results in incorrect estimates.**
 - *Note: HMI says to assume these beneficiaries are evenly distributed and will not affect results but in fact, they are not evenly distributed and will bias results.*

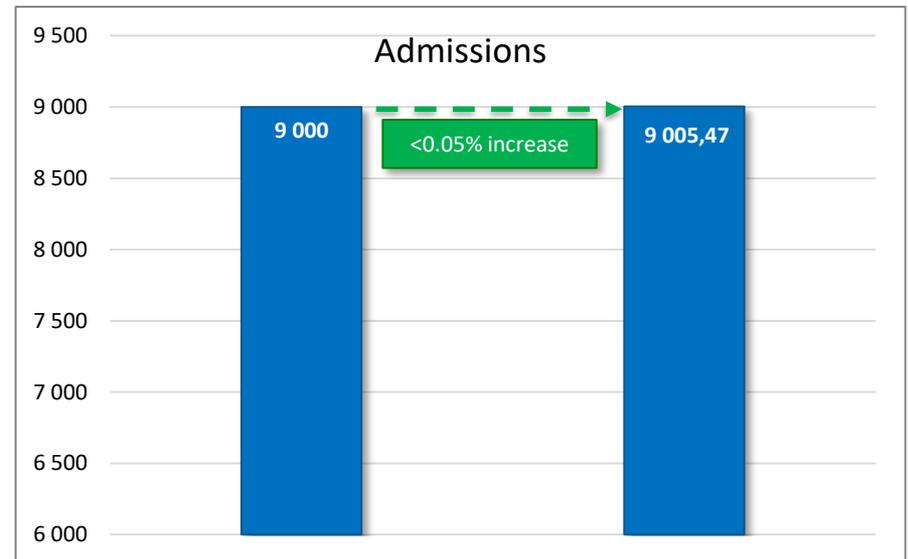
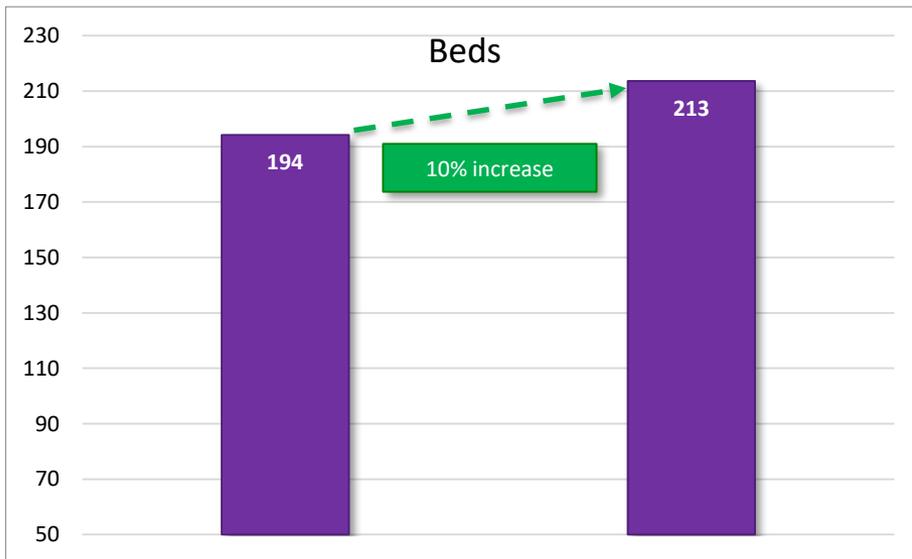
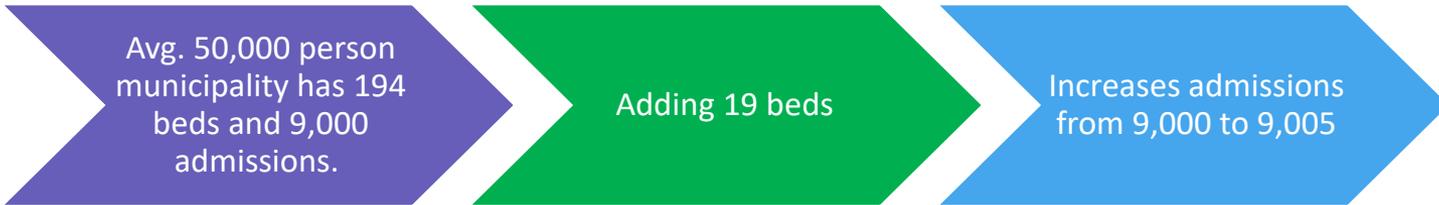
Separate models' results undermine theory and reject SID

- The “discretionary” models were designed to show that the relationship between discretionary admissions and beds was even stronger than the overall model.
- In fact, they show the opposite.
 - Almost half of the coefficients had no statistical significance.
 - Several of the coefficients for beds showed a negative relationship.
 - The HMI does not explain why its results were so weak and counter to its theory.

Positive and <i>not</i> significant	Negative
<ul style="list-style-type: none">• Cardio Thoracic Surgery• Cardiology• Neurosurgery• Orthopaedics	<ul style="list-style-type: none">• Gastroenterologist• Urology

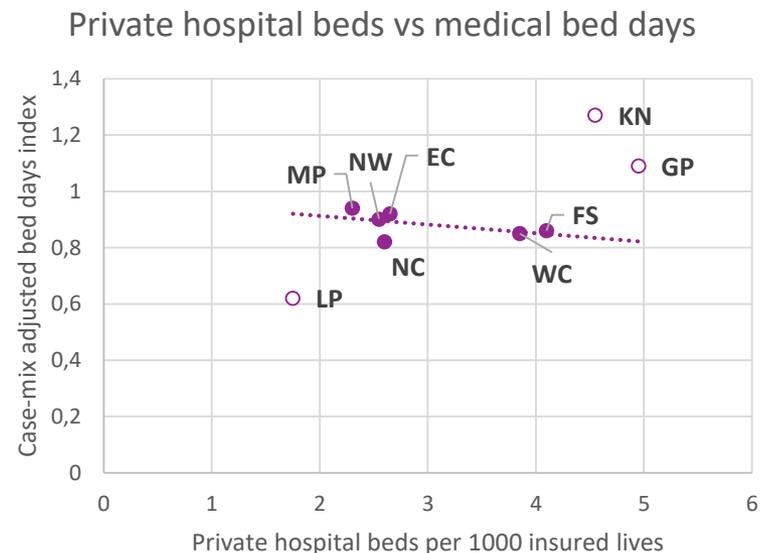
HMI: “The supply of hospital beds was not that significant an explanatory factor in the specialty models.” – Provisional Report, Ch.8 ¶58

Relationships determined are extremely small



Third party analyses do not support SID

- Discovery, Medscheme, GEMS analyses purport to show SID. All used proprietary data; none distinguish unnecessary admissions or provide detail necessary to replicate.
- The Discovery entry analysis, contrary to assertions, does not support SID. Of 19 new hospitals studied, **only five** showed increase in medical admissions.
- GEMS/Medscheme analyses cannot be used to show SID due to inadequate demand-side controls.
- Both are inferior to already problematic HMI analysis.
- Our hospital entry analysis, using HMI data does not show an effect.



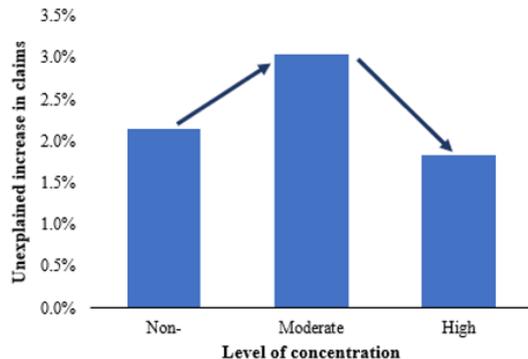
*Data from Medscheme presentation of 2019 April 9.

No theoretical or evidential relationship to concentration

Unnecessary utilisation

HMI says negative

No relationship



Total capacity

None offered

None offered

Relationship between utilisation and beds

None offered

None offered

Theoretical Relationship

Evidence

Assessment of Recommendations

Recommendations regarding SID

- No evidence for SID or even the fundamental issue of unnecessary utilisation.
- Funders already have tools to manage unnecessary utilisation
 - Case management, threats of network exclusion, pre-authorisation, paying patients directly, doctor de-listings, coding audits

HMI recommendations unrelated to SID or unnecessary utilisation

- CON
- Pricing regulation
- Licensing
- Comparable base scheme option

Netcare recommendations regarding SID

Identify existence and source of unnecessary utilisation

- Review admissions data with experts to identify extent of unnecessary utilisation
- Collect data on quality of care and outcomes

For potential SID

- Prosecute fraud identified
- Preclude physician-hospital incentive arrangements
- Review physician-hospital equity arrangements; prevent unintended consequences of doctor shareholding
- Review HPCSA guidelines and compliance to remove barriers to developing integrated delivery models
- Address adverse risk

Conclusion

HMI Argument

Theory & literature on SID

- Physicians – inconclusive evidence;
- Hospitals – speculative, no evidence
- Unnecessary utilisation not well defined

Over-utilisation and entry

- Inconclusive evidence
- Most entry by NHN and independents

Relationship between beds and admissions

- Regression subject to multitude of separate biases, any of which would be enough to discredit results
- Regression data incorrect
- Relationship of main model is practically zero
- No evidence that beds cause (unnecessary) admissions
- Discretionary models do not support theory
- Third party results do not test or prove SID.

Recommendations

- Should focus on unnecessary admissions, not beds
- Funders already have the tools to manage utilisation.

The way forward: Netcare's proposals

Applies to	Recommendation	Support
Schemes	Mandatory membership (cost saving R12.4bn)	Broad support
	Inclusion of primary care in benefit packages	Broad support
	Risk-equalisation fund	Broad support
	Introduction of standard basic medical scheme benefit package	Broad support
	Introduction of risk-based solvency approach	
	Introduction of low income medical scheme product	
Hospitals	Consistent national framework for licensing	Broad support
	Zero-rate VAT for health care	Broad support
	Amended HPCSA rules to facilitate integrated delivery models.	Some support
	Review appropriateness of physician shareholding in facilities and restrictions on training and employment of physicians	Some support
Both	Bilateral negotiation for hospital groups and funders	Broad support
	Reporting of outcome, quality of care, and bed data	Broad support
	Encourage use of ARMs	Broad support
	Industry-driven introduction of national DRG	Broad support

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Annexures

The HMI's arguments against small effect

■ ICUs have a larger effect size.

- The whole issue of ICU admissions and beds has been looked at carefully.
- This analysis does not in any way identify the specific causes of ICU admissions-whether they're necessary or not necessary.
- Overall model was not the lowest but is supposed to represent the overall effect. ICU effect was largest of all the regressions.
- The large relationship STILL does not reflect the fact that the direction of causality is unknown and the numerous flaws that render the analysis incorrect.
- HMI has already discounted the discretionary/specialty models.
- All of the econometric and data issues still apply to ICUs including the fact that the ICU bed data was interpolated.

■ The effect size would be larger with better data.

- The HMI must prove an effect size, not use low-quality data, obtain a small effect, and then conclude that with better data there would be a substantial effect.
- Completely speculative.

Certain proposal remedies are legally impermissible

HMI Proposed Remedy for consideration

Divestiture remedy is not permissible under the current provisions of the Competition Act in the context of market inquiries. (Competition Amendment Act, which is yet to become operative, provides for the Competition Commission in the context of a market inquiry to recommend divestiture to the Competition Tribunal, which must be confirmed by the Competition Appeal Court).

In terms of section 60(2) of the current Competition Act, the Tribunal is empowered to order divestiture only if the firm has contravened section 8 (abuse of a dominant position), and the prohibited practice;

- cannot adequately be remedied in terms of another provision of the Act, or
- is substantially a repeat by that firm of conduct previously found by the Tribunal to be a prohibited practice.

The divestiture order must be confirmed by the Competition Appeal Court to be enforceable. (The only other instance, which is not relevant for present purposes, where divestiture is possible is that section 60(1) also allows the Tribunal to require divestiture (effectively a de-merger) if a merger is implemented in contravention of the Competition Act).

In addition, it would violate the requirement to conduct a fair process, and the principle of audi alteram partem: HMI has given no indication of what it envisages in regard to divestiture, therefore preventing stakeholders from meaningfully commenting on the what would amount to a drastic remedy

Divestment of hospital assets

Certain proposal remedies are legally impermissible

HMI Proposed Remedy for consideration	
<p>Establishment of Supply-Side Regulator and regulated pricing recommendations</p>	<p>The Minister of Health does not have the power in terms of the National Health Act (NHA) to establish a Supply-Side Regulator and/or regulate prices in the way envisaged in the Provisional Report.</p> <ul style="list-style-type: none"> - Section 90(1)(v) envisages only a limited ability for the Minister to make regulations in respect of pricing. - It is <i>ultra vires</i> the Minister's powers, and in violation of section 90(1)(v), for the Minister to create a body to do that which the Act expressly prevents the Director-General from doing: make prices that are mandatory. - For instance, the Office of Health Standards Compliance (OHSC), which has far fewer powers, is created by the NHA, which empowers it and gives it functions. It could hardly be that the proposed Supply-Side Regulator, with far greater powers than the OHSC, could be created not by the legislature but by the Minister using mere regulatory powers, especially when not expressly provided for. Moreover, the Provisional Report envisages that the Minister should empower the Supply-Side Regulator to do certain work that the NHA makes the OHSC's core function.
<p>Moratorium on licences and 20% market share cap</p>	<p>No power to impose a moratorium or cap on market share in terms of the Competition Act.</p> <p>In addition, a moratorium remedy would be <i>ultra vires</i> as it seeks to use legislation dealing with licensing to implement a penal remedy. As pointed out by Ngcobo CJ in <i>New Clicks</i>, it is impermissible to use legislation designed for one purpose for another. Therefore one cannot use NHA to restrict licensing in order to effectively impose a market cap or indirect divestiture on certain firms.</p>
<p>Certificate of Need</p>	<p>Certificate of Need provisions (sections 36 – 40) of the NHA are not in force, and the Proclamation in 2014 (10 years after the NHA was enacted), purporting to bring the Certificate provisions into effect, was set aside by the Constitutional Court</p>

Competition Amendment Act addresses concerns around small medical schemes and small hospital providers

- New provisions in Competition Amendment Act already address concerns around how large firms deal with SMMEs and businesses owned by historically disadvantaged individuals

*“(8)(4)(a) It is prohibited for a dominant firm in a sector designated by the Minister in terms of paragraph (d) to directly or indirectly, require from or impose on a supplier that is a small and medium business or a firm controlled or owned by historically disadvantaged persons, **unfair – (i) prices; or (ii) other trading conditions.***

(b) It is prohibited for a dominant firm in a sector designated by the Minister in terms of paragraph (d) to avoid purchasing, or refuse to purchase, goods or services from a supplier that is a small and medium business or a firm controlled or owned by historically disadvantaged persons in order to circumvent the operation of paragraph (a).”

And

“(9)(1A) It is prohibited for a dominant firm to avoid selling, or refuse to sell, goods or services to a purchaser that is a small and medium business or a firm controlled or owned by historically disadvantaged persons in order to circumvent the operation of subsection (1) (a) (ii).”

Summary of HMI's views on its SID model (14 April 2019)

- *“It is very difficult, if not impossible to determine for every episode whether or not care in the form that it was provided was necessary or not.” (Para 19)*
- *“The bed data used had to be inferred from incomplete data” (Para 32)*
- *“In the model that we employed the location where a beneficiary is admitted is not taken into account” (Para 38)*
- *“It is correct that the adjustment we have used for adverse selection is a crude one” (Para 43)*
- *“It is correct that ~20% of scheme beneficiaries were not geomapped.” (Para 52)*
- *“Some stakeholders noted that the analyses have not established causality...That is correct. A statistical model based on observational data is very unlikely to prove causality” (Para 53 and 54)*
- *“Given that the beds data for the specialty models was inaccurate (that is beds by speciality rather than for the total number of beds was poorly described in the data) it is more reasonable to conclude that no inference can be drawn from this model” (Para 56)*