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Pre-Primary Care: Behavioural Insights

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The Coming Apocalypse

Practically every major speech on healthcare reform in the last decade has referred to the three outriders of the coming apocalypse: an ageing population, the rise of chronic conditions and the surge in expectation fuelled by innovation.

This tsunami of demand, complexity and expectation is careering towards the world's most mature and immature health economies without fear or favour.

The developed world faces the storm with an immovable model of care locked in place by three concerns: access, cost and quality. Policy experts describe this model as an 'iron triangle". Iron because its three cornerstones are rigidly intertwinned: increase access, costs rise and quality may decrease; increase quality, you reduce access and increase cost - and so on and so forth. Favour one concern and inevitably a ripple of second and third order consequences disturb the paradigm. Increasingly, access to a skilled and motivated workforce is becoming the limiting factor.

Meanwhile, in emerging economies like Bangladesh, where one doctor may attend on more than 10,000 people, they look on our problems with envy. Their struggle is not to balance quality with access and cost but to gauge the scale of suffering to come if a new healthcare model is not defined and enabled soon.

The Million Dollar Question

At the heart of the global dilemma is the question: "Do citizens always need to be seen by a professional to be safely and appropriately cared for?"

After studying 130m UK primary care records, N Pillay[1] concluded - no. He found 90% of people attending primary care were seeking help for minor ailments and injuries and 88% of those people were attending primary care for ailments they could appropriately self-manage i.e. stay in bed, buy paracetamol, give the injury time to heal, etc[2].

Pillay's research supports studies that show most GPs see 10 minor ailments that take up to 75% of their open surgery time. The highest proportion of minor ailments relate to "increased" or "sustained pain" and result in the prescription of over-the-counter analgesics. Pillay's report concluded that at a minimum of 20% of GPs' time is being spent on discussing ailments that could appropriately transfer to pharmacies, self-care or other health professionals (e.g. physiotherapists). In Pillay's world our surgeries are clogged with people seeking reassurance for back pain, dermatitis, heartburn, runny noses, constipation, headaches, coughs, acne, migraines and sprains (the top ten presentations in the UK) and just don't need to see a doctor.

[1] The Economic burden of Minor Ailments on The National Health Service (NHS) in the UK; N. Pillay, A. Tisman, T. Kent, J.Gregson 2010 SelfCare The Journal of Consumer-led Health

[2] The study's definition of a minor ailment or injury consultation was one that ended with either no prescription, referral or treatment or a prescription for a product that could have been bought over the counter without a prescription e.g. Ibuprofen.

The problem with Pillay's report is it is wise after the event. Other behavioural studies show that everyone thinks they are justified in attending – it is the rest of the world that's wasting the GP's time. And let's face it – we aren't doctors. How do we know when it is right to attend or not? And doctors seldom say: "You're wasting my time" – it's bad for business, unsympathetic and is just not how they are trained – and for all those who did not need to attend, there is always the one case of cancer that needed to attend.

The question health systems need to ask is: "If people are attending unnecessarily - why are they doing it?" And then separately: "How do we appropriately shift that behaviour for a significant number of people?" not: "What additional channels can we give citizens to access care?" The evidence suggests the pressure on primary care is unlikely to be alleviated by channel shift. However, it might be solved by behavioural, professional and culture change where technology is the catalyst.

Transformation not Substitution and Channel Shift

For instance, healthcare systems are currently spending millions on innovation that attempts to triage people away from primary care but how much time has been spent looking at the stimuli that drive people to present to their general practitioner or accident and emergency services? Our current focus is on devices, applications and the substitution of existing paper-based processes with technology.

Intuitively we can see the utility and convenience of these systems for patients but what evidence do we have for productivity gains and savings for healthcare systems?

For example, being able to call a GP via a phone or video link provides utility and convenience for the consumer but doesn't significantly increase the productivity of a surgery[3]. In fact, studies suggest access via phone or video increases the overall time GPs spend consulting and generates new demand. A recent five-year study in the US of "e-visits" covering 100,000 patients concluded they triggered six per cent additional primary care encounters[4].

Calls can take as long or longer than a face-to-face consultation, they require surgeries to change the pattern of the working day and often result in the patient having to attend anyway. Opening up new access channels creates perverse behaviours. The US study found the public viewed "e-visits" as a "low-cost" way of bypassing the usual practice gatekeepers such as office staff and nurses. Once talking to the physician it was easier to get a face-to-face appointment. The researchers called this the "gateway" effect. E-visits can also be a poor method of conveying information. This uncertainty leads patients to come back for more reassurance. Lastly, the low-cost nature of "e-visits" leads to increased adoption by the worried well who want quick assurance they are not sick.

[3] J Newbould et al, Evaluation of telephone first approach to demand management in English general practice: observational study. BMJ 2017
[4] Bavafa et al, The Impact of E-visits on Frequencies and Patient Health: Evidence from Primary Care, Health Care Management Science, May 2017

Hessam Bavafa, the prime author of the US study, observes: “As a result, systems that are at capacity and/or paid for on a capitation basis may not see the benefits of e-visits they expect since the additional visits by existing patients may reduce capacity for new patients without generating incremental revenue”.

And is a technological approach that ultimately increases access beneficial if it doesn’t significantly increase productivity? There is a finite number of doctors. The World Health Organisation estimates the global shortage of healthcare workers to be more than two-and-a-half-million[5]. They take seven years to train and require a certain level of intellectual acuity to ensure professional credibility.

Current video services are tapping into existing banks of doctors that are underused or leveraging the cohort of part-time doctors. If it becomes the norm for citizens to seek video consultations where will these services find the doctors they need? What will the model look like when scarcity drives up costs or drives down quality?

Yet there is evidence that targeted video consultations can increase productivity in specific scenarios e.g. preventing a GP driving between care homes or allowing a GP to rapidly tick off check-ups where there has been no change in the patient. Research shows GPs call in up to 50% of all patients themselves for routine checks and follow-ups. Many patients are unclear of the benefits or necessity of these consultations which leads to high did-not-attend rates - 28% for some type 2 Diabetes follow ups[6]. Many of these appointments can be dealt with appropriately in other ways.

There are close to 30 small studies[7] that demonstrate video consultations: after surgery reduce unscheduled clinical visits[8]; help young people with mental health issues[9]; assist in the management of social anxiety disorders[10]; improve COPD breathing techniques[11], and reduce did not attends for type 2 Diabetes follow-up clinics.[12]

Behavioural Insights

So what do we know about the motivation of people attending primary care? And how might it inform a more strategic approach to the deployment of technology in a new Pre-Primary Health sector[13]? Tap “Why do people attend primary care?” into Google and a ream of research appears. Not surprisingly, it is a subject that exercises many physicians around the globe.

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[5] Global Strategy on Human Resources for Health: Workforce 2020; WHO 2016

[6] Vijayaraghaan S et al. Web-based consultations in diabetes - a useful tool for supporting patient self-management? Study by Health Foundation, Newham Barts Health Study 2014

[7] Virtual online consultations: advantages and limitations study. T Greenalgh et al; BMJ Open 2016

[8] Sharareh B Effectiveness of telemedical applications in postoperative follow up after total joint anthroplasty Journal of Arthoplasty 2014

[9] Levy S et al. Growing up with confidence: using telehealth to support continence self-care deficits amongst young people with complex needs, Inform Primary Care 2014

[10] Yeun EK et al, Acceptance based behaviour therapy for social anxiety disorder through videoconferencing, Journal of Anxiety Disorder 2013.

[11] Nield M et al Real-time telehealth for COPD self-management using Skype, COPD 2012.

[12] Vijayaraghaan S et al. Web-based consultations in diabetes - a useful tool for supporting patient self-management? Study by Health Foundation, Newham Barts Health Study 2014

[13] The Pre-Primary Manifesto, J. Carr-Brown and M. Berlucchi, Your.MD report 2016

Anyone considering creating a patient-centred solution should read the academic literature that is already available but if you're too busy, here's a resume of 17 articles.

The papers generally conclude that the decision to seek a face-to-face consultation turns on a complex mix of social, psychological, cultural and biomedical factors. No surprise there. Poor general health, social disadvantage, poor social support and inadequate coping strategies are associated with the rising consultation rate – where once the population averaged three visits per year it now averages five to six[14].

This complexity makes framing a pre-primary care solution harder than just substituting a digital approach into one aspect of the existing primary care workflow.

We Triage Ourselves

The starting point is challenging assumptions about patients.

For instance we can't assume patients have no symptoms for long periods of their lives and only attend when the symptoms first appear. Second, we can't assume that when patients do appear in a surgery they have been driven there by the seriousness and frequency of symptoms and lastly, it is wrong to categorise patients coping with serious symptoms as irrational for not seeking attention[15].

In reality, most people have symptoms of something most of the time. They are the niggles we discuss when asked: "How are you today?" We are constantly triaging ourselves and we find any additional triage irritating. This in itself may provide an insight into why systems like 111 and GP triaging systems are not effective at significantly reducing attendance.

The frequency and/or seriousness of symptoms are not good predictors of attendance at the doctor and most people make decisions to seek or delay attendance for rational reasons – framed in the terms of their own beliefs and values.

Men's decisions are coloured by complex issues involving biological, psychological and sociological considerations.

An Australian study[16] in 2008 showed that men monitored their health status and made conscious decisions about when and how to seek help. Four factors were found to influence the ways men monitored their health: the length of time available to seek help; men's previous illness experience; the impact on their ability to maintain regular activities in the context of their daily lives and a judgment of illness severity.

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[14] QResearch Sept 2008 Trends in Consultation Rates in General Practice 2008 - 2009

[15] Annette Braunack-Mayar. Before the consultation: Why People do (and do not) go to the doctor, British Journal of General Practice 2009

[16] Smith JA, et al (2008) 'It's sort of like being a detective': understanding how Australian men self-monitor their health prior to seeking help. BMC Health Serv Res

In the same vein, men are less likely to present complaining of depression but will seek help for the negative effects of depression like the misuse of alcohol or drugs.

The mixture of factors that underpin people's tipping point into primary care also supports the conjecture that a decision to delay seeking help for symptoms can make sense if it is interpreted in the light of a patient's own beliefs and values. It also suggests a lot of self-care is already going on before a lay referral into primary care.

We All Self-Care

For instance, a study by Leydon[17] showed that women with UTIs follow a pattern of self-care: first they identify that they have a problem, then they attempt to address it. Only when the symptoms begin to interfere significantly with everyday life or if they imagine the failure to self-care suggests the condition is more serious do they finally make a visit to a doctor.

For the most part, patients are not thoughtless users of health services; they do not lightly visit the doctor. They assess their own health status and they take measures to manage symptoms and self-care their diseases. However, the logic that they follow in deciding to seek help may not necessarily resonate with clinicians since it will be shaped by a wider range of factors than the straightforwardly biomedical.

This analysis was confirmed by a study[18] of frequent attenders that found people were triaging themselves using the following set of questions:

- Does the problem fit with my perception of the GP's role?
- What have I learned from my past experience of symptoms and/or consulting and can that inform this decision to consult?
- How does my own consulting compare with others' and what does my GP think of me?
- What is the nature of the relationship with my GP?
- Do the fears of consulting outweigh the fears of not consulting?
- Do other people (family and friends) corroborate my decision to consult?
- Do I have any particular individual reasons that I need to consult for?
- Is this a symptom for which I would not normally consult?

The study concludes the processes by which attenders make individual decisions to consult are informed by their experience of symptoms and of consulting in the past, how chronic their condition is, their perception of the power of the GP and how familiar the patient is with gaining access to the GP.

[17] Leydon G, Turner S et al: The Journey from self-care to GP care: a qualitative interview study of women presenting with symptoms of urinary tract infection. British Journal of General Practice.

[18] I always seem to be there – a qualitative study of frequent attenders: Richard Neal et al British Journal of General Practice 2000

Too Much, Too Late

So what does this mean? This research tells us that by the time someone picks up the phone or goes online to seek a consultation a lot of water has flowed under the bridge.

As a consequence, any attempt to change behaviour at this stage by digital triage or online consultation is likely to be ineffective. That's not to say these approaches cannot be shown to work for a particular cohort but for most attendees it will come too late on their journey towards a consultation with a GP. Worse, there is a strong likelihood the individual seeking a consultation will regard attempts to triage them as a frustrating and irritating barrier to entry. The consequence is these interventions are likely to lead to gaming or simple non-compliance.

Essentially, people don't want to attend frequently but will if they feel something is not right and continue to do so until the issue is diagnosed, resolved or the management of symptoms enables them to have a tolerable lifestyle.

No surprise then when we feel vulnerable we seek more support and reassurance. There is evidence that greater knowledge of all a patient's circumstances e.g. housing, mental health (a component of up to 30% of consultations[19]) can reduce attendance. People who report feeling lonely most of the time attend twice as often as people who feel lonely rarely[20]. In the same way adults who are continuously employed consult the least while those who have lost employment attend more frequently.

Diminishing Health Knowledge

Previous experience of illness is also important, as is your support network. Self-triage usually involves asking family members to seek reassurance that you are either right to seek a consultation or being foolish. But in an age where people with experience of coping without immediate recourse to a health professional are dwindling, the refrain from friends and family is most likely to be: "You should get it checked."

Increasingly, we live in a world without support networks. We have a population of ageing singletons, broken family units and enormous social movements into anonymous cities. Where is this mass of unsupported people turning to for reassurance? Google.

The world's largest search engine estimates 80% of people carry out searches before attending primary care physicians. The experience of NHS Choices, the NHS's public information service, is that this behaviour drove traffic from 1m visitors a month to 55m in five years. NHS Choices (www.nhs.uk) tapped into an unmet need for authoritative, reliable structured medical content.

[19] Jenkins R, McCulloch A, Friedli L, Parker C. Developing a National Mental Health Policy, Maudesley Monograph 43 Hove: The Psychology Press, 2002

[20] Someone to talk to? The role of loneliness as a factor in the frequency of GP consultations: Anne Ellaway et al – British Journal of General Practice, May 1999.

Early on, the research team at NHS Choices was able to identify the original mission to provide data on the quality of NHS primary and secondary care services was secondary to the demand from women looking after themselves, their children, husband and parents for information that might guide their actions.

A Requirement for Authoritative Personal Information

The evidence from Google and NHS Choices shows a significant number of patients are either looking for reassurance that they can self-care, support to self-care or information about how to self-care. Why? The research suggests most patients who attend primary care know what is wrong with them, they just aren't certain - enough.

It is plausible that such large numbers of people consult their GPs because they need information to tip them into "certainty" about self-care rather than treatment by a GP. This need may play an important part in the decision to consult, as the GP is perceived by patients as the only source of authoritative and reliable personalised health information and advice.

This desire for information was underlined by a 1992 study[21] of 1,000 patients. It found that heeding the advice of others before consulting a GP was an important determinant of consultation behaviour.

The study showed that information played an important part in explaining the decision whether or not to consult. It concluded that GPs should realise that patients may consult to obtain more information, rather than medical treatment. More information about the effectiveness of different types of care could offer patients the possibility to choose the most appropriate care. But for this to work effectively the individual would need to be confident in their self-diagnosis or at least the probability that their diagnosis was correct.

Another paper presented the findings of a discrete choice study[22]. This was an experiment to measure the relative importance responders placed on different characteristics of a service, and the extent to which they trade between characteristics, that is, how much of one aspect of a service they are prepared to forfeit to have more of another. The participants were asked to choose between several options for a service.

Twenty-four people were asked: "you have a headache and a fever, your bones are aching and your nose feels slightly blocked. You are still able to do all the things you usually do but are more tired than usual. The symptoms started to appear four days ago and were slightly worse when you woke up this morning." They were then given six options with a price and a time to deliver

[21] Angelique van de Kar et al: Why do patients consult the general practitioner? Determinants of their decision. British Journal of General Practice August 1992.

[22] Preferences for self-care or professional advice for minor illness: a discrete choice experiment: T. Porteous. Mandy Ryan, Christine Bond, Phil Hannaford; British Journal of General Practice, 2006

associated with each option (self-care, pharmacy advice, GP consultation, practice nurse, telephone service, complementary therapist).

Given the scenario, people wanted to do something. Most preferred self-care, pharmacy and GP advice was next preference. Generally people want to wait less time and pay less money to manage symptoms.

A Requirement for Authoritative Personal Reassurance

The golden thread between these disparate studies and findings is the need for information, reassurance and support – from a trusted source.

In order to care for themselves patients need to feel in control of their illness and part of that involves having adequate information. The need to gain further information about a condition may be an important factor leading to a consultation. Finding ways to provide more relevant and personalised information for patients may be an important way of helping them to deal with both acute and chronic illnesses.

Interventions could be developed where patients are informed about the effectiveness of medical care or self-care for specific conditions. Such interventions might prevent unnecessary consultations or treatment delay, resulting in lower costs, less likelihood of the course of the disease being prolonged or more complex treatment necessitated and a more focussed use of primary care physicians.

When patients feel that a complaint could be treated without the help of the general practitioner they are less inclined to consult. The need for information seems to be an important reason for patients to present a complaint to the GP. We can call this the requirement for reassurance.

These findings were supported by an Imperial College study in 2009 that looked at the potential benefits of NHS Choices' health information service for GP consultations.

This study showed that a significant proportion of the population of internet users had been influenced by medical websites to change their health services-seeking behaviour. Thirty-seven per cent of NHS Choices' users who used the service for their GP consultation reported that it appropriately decreased their use of GP services.

High-quality, simple content presented in a convenient and engaging manner can increase a person's confidence in their ability to care for themselves e.g. inhaler videos, or personalised videos that associate an individual's data with actions. In 2015, a study[23] in Scotland observed that the simple expedient of raising awareness of symptoms and ailments suitable for self-management might help reduce healthcare-seeking behaviour.

[23]Shona Fielding et al: Estimating the burden of minor ailment consultations in general practices and emergency departments through retrospective review of routine data in North East Scotland; Journal of Family Practice April 2001

Shifting Individual Tipping Points

One conclusion from all this research, is that any attempt to stem the tsunami of demand must not be perceived by the public as institutions fobbing them off with a "second rate" digital alternative to the Gold Standard of care they have been building themselves up to receive.

Instead, we need to build authoritative and reliable medical Pre-Primary Care digital companions that can both reassure and warn individuals about the state of their health before they reach their personal tipping point into primary or emergency care.

People appear to attend GPs because they feel it will be more effective than their own actions at reducing a perceived "threat" or "cost". It may follow that if more people felt confident that self-care would reduce the "threat" and minimise the "cost" to them they might practise self-care more appropriately and consistently. It may also follow that if people were provided with a personalised view of the real probability of risk their behaviour might align with GPs' skill set more appropriately.

Belief in the effectiveness of care is important in the use of self-care. Patients who believe in the effectiveness of self-treatment are more likely to treat themselves. Patients who choose to use self-medication first are less likely to consult the doctor. The corollary is that pushing people to self-care that are not confident will be ineffective.

One approach might be to shine a statistical light on the gold standard of primary care by exposing GPs' diagnostic success rates.

Dr Mark Graber has reviewed studies of diagnostic error and found errors deduced from autopsy tend to put the accuracy rate at 80%, secret shopper tests at 85% but second opinion surveys can drop the accuracy rate to 50%[24].

This inconsistency of approach across the profession and variation in individual decision making presents a powerful argument for the inclusion of artificial intelligence in diagnostic approaches to ensure consistency and accuracy in emerging and developed nations. Tests of tools like Your.MD and others are demonstrating that for the conditions they cover (both are slowly building condition clusters) they are currently consistently accurate 79% to 93% of the time[25].

The Pre-Primary Belief Model

If you were a healthcare commissioner designing a technically enabled Pre-Primary Care eco-system using predictive analytics, patient segmentation, information, education, new access channels and community support you might take a leaf out of the Health Belief Model and ask these questions:

[24] The incidence of diagnostic error in medicine Dr Mark L Graber, RTI International, SUNY Stony Brook School of Medicine, Narrative Review BMJ Quality and Safety Vol 22 Issue 2, 2013

[25] Optimity Advisors Independent Review of Your.Md using Harvard Vignettes

a) Probability - How do we make the extent to which a person perceives a threat to his or her health based on real probabilities?

b) Cost - How can we give people a realistic understanding of the benefits of attending based on their personal symptoms?

c) Outcome - How can we appropriately change a person's belief that consulting a doctor will reduce the perceived threat to their health?

d) Prediction - How can we address other cues like loneliness, embarrassment, stress and the media?

Within this model lies a blueprint for the human services and digital interventions we need to create to truly bring about a new healthcare sector and in so doing finally relieve the pressure on the current model constrained by inflexible infrastructure, constrained professional resources, rising costs and a poor understanding of patient behaviour.

Conclusion

If we divide the primary care experience into four phases: explorative, triage, consultation and further care then the Pre-Primary sector inhabits the explorative phase where an individual is deciding themselves whether to seek help and the post-consultation phase when the patient is managing their condition in their own environment.

What the evidence and the health belief model tells us is that whatever you call this phase citizens need more help to make the right decisions and they need it earlier.

The help has to be technically enabled but not technically dominant. It must be transformative and trustworthy not substitutive or driven by current commercial models. It requires a new cadre of lay health workers and the sector must be considered as trustworthy, competent and reliable as a visit to a doctor for information or reassurance.

The creation of a Pre-Primary Care sector - as envisioned by Molly Coye MD, former Chief Innovation Officer of UCLA Health and Social Entrepreneur in Residence at the Network for Excellence in Health Innovation, and David Lawrence, former Chief Executive of Kaiser Permanente - is as much about cultural and role change as it is about technical implementation.

Health professionals need to recognise - as technology inexorably advances - that patients will be able to analyse symptoms as effectively as a primary care physician. Miniaturisation will lead to personal access to testing and access to imaging currently only available in hospitals.

This is not a new situation for doctors . When pregnancy testing came onto the market most women who used it were told to do another urine test by their doctors. Now if a women rings her GP and says she's had a positive pregnancy test she will be directed immediately to the midwife. It took doctors decades of duplicating the results of pregnancy tests before they realised they were a redundant cog in the workflow. They still play an important consulting and escalation role but their initial role in the pathway has been rendered redundant by patient-initiated testing.

In the Pre-Primary Care sector people will test themselves, check themselves over and then consult on variations and abnormalities.

Pre-Primary Care is not simply a shift to self-care. It is a recognition that with personal, societal, service and technical support we can help the public take safe, intelligent decisions about when, why and how they should access primary and emergency care.

The personal aspects of Pre-Primary Care are enhanced health education in schools, and better problem and emotional skills training. The societal foundation involves befriending services, community health workers, and digital support networks. The service side focuses on building community assets, better health service navigation tools and primary care homes. The technical catalysts to glue the sector together would be symptom checkers, consumer diagnostics, ownership of health records, access to best practice information and AI health companions driven by personal data from self-monitoring and measurement.

Targetting the population's health knowledge and resilience, supporting individuals to make biomedically appropriate decisions, is the only way to prevent the outriders of the healthcare apocolyspe destroying a model of care that works.

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Jonathon Carr-Brown is the former managing director of NHS Choices (www.nhs.uk). He was one of the founders of the site when it launched in 2007 and as managing director (2010 – 2014) increased the health information site's traffic from seven million visits a month to 45 million. During that time he was involved in introducing information prescriptions to the NHS and digital concepts like online LifeChecks and commenting on GPs.

He is now managing director of Lost for Words a consultancy dedicated to introducing innovative digital ideas into the healthcare sector. Prior to his digital career he was a speechwriter to the UK's Secretary of State for Health (2006) and enjoyed an award-winning 20-year career as a journalist. This period included stints as the political editor of The Independent on Sunday and the Health Correspondent of the Sunday Times. He is now also an Honorary Teaching Fellow at the Institute of Global Health Innovation within the Faculty of Medicine at Imperial College London.

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