Team strategic philosophy: requiem for the infinite game

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Mini Abstract

Deliberate accountability has arrived in the medical arena, producing an age of reward for measured performance, and belief in publicizing metrics to ensure clarity, with winning defined as hitting targets, whereby staff are incentivised by arbitrary objectives. Finite game theory declares that players are known, rules are fixed, and the objective agreed, but infinite game theory asserts that players are both known and unknown, rules are changeable, and the objective is to perpetuate the game; these standards are clearly at odds and risk real world chaos in global universal medical education and clinical outcomes and functioning. Five principles are necessary to lead an infinite game: first, a *fair basis,* such that sacrifices for its advancement are promoted; second, a *trusting blame-free team culture and environment; third,* competitors viewed as *worthy rivals*, rather than adversaries, promoting healthy competition; fourth, *existential flexibility* when faced with credible evidence; and finally, *transformational leadership*; including infinite game theory into healthcare planning may be difficult, but the potential rewards are surely worth the existential fight.

Nowhere have the virtues of competition, performance metrics, and precision, been more touted than in the arena of medicine, understandably so, because stakes are seldom higher, for lives are on the line.[1] Winners and losers emerge, because if there are at least two parties involved, each with different perspectives, then a game is in play.

Game theory is divided: finite and infinite.[2] Finite games are played by known players, have fixed rules, and agreed objectives that when reached, end the game. Rugby for example, is a finite game. Players wear identifiable uniforms, there are agreed rules, which referees are present to enforce. All agree to play by those rules, accept penalties if broken, and whichever team has scored more points, by a set time, will be declared the winner, terminating the game. Finite games always have a beginning, middle, and end.

Infinite games, in contrast, are played by known and unknown players, have no fixed rules, and primary objective is to perpetuate the game. Conventions or laws may govern how players conduct themselves, but within a broad envelope, players can operate however they wish. Moreover, the way the game is played may change at any time for any reason. Infinite games have no time limits, and because no real end exists, there can be no winner. The game ends when one party loses the will or resources to continue.

The applied science of game theory, originally described in the economic arena, has been acknowledged with seven Nobel prizes, yet despite its manifest application to healthcare, appreciation of its academic, theoretical, and clinical weight is poor within health systems. Modern medical practice mirrors game theory in striking ways, and any reasonable observer would surely agree that healthcare's workforce is multidisciplinary, medical

knowledge in a state of continual change, and there can be no winners in medicine; an infinite game is therefore in play. Nonetheless, infinite games can contain smaller profile, finite games, within the bigger picture - the obvious medical example being obtaining professional credentials by means of formal summative examinations.

Yet finite mind-sets and strategies dominate day-to-day NHS practice. Modern hospitals are volatile; working climates can be hostile, with high-risk profiles, especially so in unscheduled emergency work, where conflict is inherent to the job description. Clashes occur between colleagues, between both tangible and virtual teams, and cross professional boundaries. Driven by a time-bound, target-focused culture, criticism can be disproportionate and unjust. Rather than airline industry ‘black box thinking’, where adverse events are considered learning opportunities, toxic blame cultures can result in crumbling morale. Leadership styles are mostly transactional and rarely transformational, focusing on crisis management and ‘keeping the ship afloat’, rather than inspirational, example-directed motivation. Progressive measures to deliver better clinical outcomes, intensive on-call rotas, curriculum demands, Sisyphean goals, and dwindling resource, produce work related emotional stress, which risks patient welfare with important economic implications.

When finite players meet in the same game, the situation is stable. Likewise, when infinite players meet infinite players, the situation remains stable; but when finite players meet infinite players, the state is inherently unstable, risking anarchy. Emotional exhaustion, depersonalisation, and a diminished sense of accomplishment, is recognised as a syndrome termed burnout, with symptoms akin to acute stress reaction (ASR), and post-traumatic stress

disorder (PTSD). [3] Moreover, hidden curricula exist; ethical, moral and value-based lessons, learned without explicit intention because of profound cultural bias. Omnipresent subtle undercurrents, filter through the working environment, risk discrimination, and because of consistent daily reinforcement, can be more material than explicit rules or syllabus. In addition, poor sleep quality, harassment, bullying, deprivation, variable clinician performance; all derive from pervasive restricted attitudes.

Inherent to the above, are existential mind-sets driven by “making the numbers” or “hitting the targets” whereby staff are incentivised by arbitrary time-bound metrics. Moreover, these scenarios are in keeping with a quantitative myth; the McNamara fallacy.[4] Robert McNamara had by any standards, a stellar career profile. Harvard graduate, president of Ford motor company, before rising to the heights of U.S. Secretary of Defence in the 1960s. McNamara epitomised American élan and brio, but for one alleged flaw; he viewed the world in numbers. This numerical delusion states: first, measure whatever can be easily measured; second, disregard that which cannot be measured easily; third, presume that which cannot be measured easily is not important and therefore does not exist. During the Vietnam War, McNamara employed a ruthless strategic method he had successfully used at Ford, where he created data points for every production element to improve efficiency. One of his main metrics was body count. “Things you can count, you ought to count; loss of life is one.” But war is characterised by the un-measurable chaos of human conflict, not assembly line production, and events spiralled out of control, with unknown variables culminating in a public

and cultural outcry against US involvement in the war. Although on paper America was winning, ultimately they lost the will to continue the war.

The NHS has some of the world's most challenging performance standards, which cover a range of services including ambulance response times, waiting times for diagnostic tests, as well as the more high-profile waiting times for elective treatment, cancer and A&E services. The latest data for 2017/18 shows that performance is deteriorating across the board. The 18-week referral-to-treatment standard for planned care has not been met since 2016, and the 62-day cancer standard for over three years. A target to discharge, admit or transfer 98% of patients arriving in A&E within four-hours was introduced by government in 2004 and set at 95% in 2010. But the target has not been met for more than four years, with over one in five patients waiting longer than four-hours in December 2019. Moreover, such targets may result in unintended consequences. Analysis by the Institute for Fiscal Studies reported that the target leads to a huge spike in patients admitted just before the four-hour limit, translating into a 12% increase in hospital admissions and a 5% increase in costs; mortality within one year was similar regardless at 9%.

Medicine and surgery are by definition chaotic and indeterminate, on an even greater scale than war related conflict. The McNamara fallacy in medicine is characterised by a progressive syndrome: first, the delusion that all complexity can yield to numerical analysis; second, over reliance on crude metrics (hospital mortality rates) to aid analysis; third, setting of arbitrary targets on the spectra of these metrics; fourth, pressure on doctors to perform quality assurance programmes concerned with meeting such arbitrary targets;

fifth, these pressures dominate, leading to the neglect of unquantifiable attributes, such as communication, competence and compassion, risking ethical fade. Ethical fading is a cultural condition that allows people to act in unethical ways in order to advance their own interests, while believing falsely that they have not compromised their own principles. Often starting with small, seemingly innocuous transgressions, if left unchecked, multiply and grow. While ethical lapses can occur anywhere, organisations run with a finite mind-set are especially vulnerable to ethical fading, and unfortunately individuals who have behaved dubiously but met their goals, are rewarded with promotion, while those acting with integrity but who missed targets are penalised and unrecognised for advancement.

The question therefore is how this scenario might differ if existential mind-sets transformed, and game theory was appreciated? Arguably, five principles are necessary to lead an infinite game.[5] First, a *just cause,* that is equitable, resilient, and service orientated, such that sacrifices for its advancement are promoted. Second, environments must be created where people can become their best and feel safe, with freedom to be honest and request help when needed; *a trusting blame-free team culture*. Third, adversaries may be acknowledged but also respected; not viewed as competitors but *worthy rivals*, measured against the *just cause,* promoting healthy competition. Fourth, *existential flexibility* should be cherished, especially when faced with credible evidence. Fifth, *courageous leadership must be developed*; a willingness to sacrifice short-term gain to promote long-term benefit. Søren Kierkegaard (1813 to 1855), Danish theologian is generally considered the first proponent of Existential Philosophy, whose the principal value is freedom,

and primary virtue is authenticity; a psychological concept related to the degree with which actions are consistent with beliefs, despite external forces.[6] For infinite game theory to work in practice, it must align with team theory, most recently termed “teaming.” Google’s Project Aristotle (2012) [8], named in tribute to Aristotle (384 to 322 B.C.E.), one of the greatest philosophers of all time, and one of whose most famous treaties states

“The whole is greater than the sum of its parts” [7, 8]

The researchers found that what really mattered was less about who is on the team, but more about cohesive team behaviour. Five domains were identified and ranked. First, *psychological safety: r*eferring to an individual’s perception of the consequences of taking interpersonal risk, in the face of negative perceptions. High psychological safety is associated with a level of risk comfort, with confidence that no team member will punish others for admitting mistakes, asking questions, or offering new ideas. Second, *dependability:* dependable team members reliably complete quality work on time. Third, *structure and clarity*: understanding that the consequences of performance are important for team effectiveness. Goals set at the individual or group level, but must be specific and challenging, but not necessarily universally attainable, because in any dimension that cherishes academic reach, achieving 100% of the set goals will likely never be achieved; a 70% result, at best, is all that is pragmatic. Google often uses Objectives and Key Results (OKRs) to set both short and long-term goals. Fourth, *meaning:* finding purpose in either the work, or the output, is important for team effectiveness. Fifth, *impact*: the subjective judgement that the work is making a difference.

Moreover, evidence that the work is contributing to the organisation's goals will reveal impact.

Global healthcare is one of the world's biggest employers, the UK National Health Service the 5th largest employer Worldwide; yet in the first decade of the 21st century, glaring gaps and striking inequities in health persist, both within and between countries. [9] Ultimately, reform begins with a change in the mind-set that acknowledges, challenge, and seeks solutions. The British Army's "Army Doctrine Publication (ADP) Land Operations" defines fighting power as a concept describing the operational effectiveness of armed forces, and outlines three interdependent contextual components: conceptual, moral and physical.[10] The physical component consists of manpower, resources, sustainability, and training: the means to fight. The conceptual component is knowledge, understanding, and application of the doctrine behind how to fight. The moral component concerns morale, leadership, and ethical conduct; the ability to get people to operate properly. This thread is clearly applicable to healthcare, and adept transformational leadership aligned with all of the above principles must be developed, away from arbitrary time-bound, target-focused transactional strategies, promoted by infinite game theory which should boost health educational culture, to provide better synergistic healthcare. The only potential pitfall lies in uncertainty regarding what the precise result will look like and just when it will transpire.

From a philosophical perspective, health is all about people, education about leadership, and improvement is relative. But can anyone ever win at education, medicine, or life? Surely not, because against what metric and time-frame should outcome be measured? We cannot choose whether any

game is finite or infinite, but we can choose whether to join in the game, and whether to play with a finite or infinite mind-set. The aim should be for whole collectives to improve and advance, and accept that at any given time, any given player may be behind or ahead of another. Team strategy is a way of describing how to get things done, and good strategy will deal with both barriers and assets, and moreover, back the just cause. Adept transformational leadership, allied to infinite game theory, should boost health education culture and provide better synergistic healthcare.

Contribution statement

Arfon Powell – Conceptualised, planning, writing – first draft, writing - revision, submitted manuscript.

Chris Bowman – Writing – first draft, writing revision

Chris Brown – Planning, writing revision

Richard Egan – Planning, writing revision

Wyn Lewis – Conceptualisation, planning, writing – first draft, writing – revisions

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