Viewpoint

Clinically Lean; "Cutting the Crap"

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Abstract

Proponents of Lean Philosophy believe that successful businesses must reduce waste in working time and resources to a minimum, and maximise their use in productive work. The productive work of the Acute Medical Unit is to provide effective clinical management to a daily cohort of acutely ill patients. Many Clinicians are cynical about Lean. In this article, Dr Caldwell discusses how many clinicians complain of too much crap in the workplace, which gets in the way of swift, safe high quality clinical care. He argues that "Cutting the Crap" in the Acute Medical Unit is entirely consistent with Lean approaches to management of complex systems.

Keywords

Acute Medical Unit, Acute care, General medicine, Quality, Patient Safety, Productivity, Effectiveness, Efficiency, Waste, Lean.

"It is a truth universally acknowledged that a group of doctors will soon start complaining about their working conditions, but little ever changes."

– Gordon Caldwell

"Physicians, as a rule, have less appreciation of the value of organisation than the members of other professions"

– William Osler

When doctors meet they often start talking about the cases that have recently fascinated them. Very soon, however, they start to complain and moan about how difficult it is to do their work, because of all the crap that gets in the way of what they want to do. Someone has added yet another mandatory form to the clerking notes, or the computers are slow, the Juniors spend all their time answering their bleeps and ages waffling through case presentations, and then the patient is in X ray. Yet mention the word "Lean" to these doctors and they instantly unite in scathing comments like, "Clinical care is not a factory", "Making a patient well is not like making a car", "Lean just means making people redundant and saving money, it's another management fad", "It means more hours work for less pay".

In early 2009 I heard Dr Gary Kaplan, of the Virginia Mason Medical Center in Seattle, talk about how he had adopted lean philosophy and transformed the working of the hospital. He and his senior team of managers and clinicians worked in Japan at Toyota and came back to implement lean approaches to improving patient care and experience. The quality and safety of patient care had improved dramatically. At the same time the hours of work for all staff had fallen, and the financial performance had turned around. Somehow patients were being treated better, staff were more satisfied and efficiency had been improved.

The lean philosophy seemed to be: to understand the purpose of the organization, to commit maximum effort to that purpose, and reduce to a minimum any activities which do not contribute actively to that purpose. In short, to do everything possible to "make it easy to get it right first time". I think his hospital showed us how to be "Clinically Lean", by "Cutting the Crap" that gets in the way of swift, safe, rewarding patient care.

How can "Clinically Lean" be applied to the Acute Medical Unit?

In simple terms the purpose of an Acute Medical Unit is to take patients who are suspected of having important acute medical conditions and quickly to restore their health to a point that they can safely resume living outside of hospital. For a small proportion of patients the purpose is to anticipate and provide for a calm end of life. An essential purpose in any medical practice is to be actively training the next generation of health care professionals to better our performance in health care.

I sum these purposes up as:

Right diagnoses and the
Right treatments at the
Right time in the
Right place with the
Right to no avoidable harm and
Better next time.

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Clinically Lean; "Cutting the Crap"

Once we are clear that this is the work of an Acute Medical Unit, then we can start to "Cut the Crap", and start to optimise our working practices.

I read books on Lean, on Henry Ford and on Toyota. I could easily identify all the crap and see how it could be reduced and everyone benefit. Surely this should be easy to sell to our disgruntled group of doctors and their managers? "We are going to cut all the crap you are talking about, help you to get it right first time for more patients, make you more content in your work, and improve financial performance". Yet I have found it almost impossible to sell "Lean" to either my fellow Consultants or our managers. Perhaps it is just a failure to translate management words and thinking into a simple phrase like "Cutting the crap?"

Saiichi Ohno identified seven forms of waste in production processes. The success of Japan after the post war years was largely because of obsessive commitment quality and to reducing wasteful use of resources. The most important resource in any complex organisation is the people in the organisation. Everyone should be making a maximum commitment to the purpose of the organisation. I will attempt to translate these lean concepts into vernacular medical English terms, which could be applied to the Acute Medical Unit, or indeed any area of medical practice.

1. **Duplication and covering our backs** = "**Overproduction"**. Lean processes avoid stock piling of resources or making too much product which has to be stored, or even making the wrong product.
   Examples:

Doing the "daily bloods" – Juniors fear being asked if they have done a particular test, so do "the bloods" every day just in case they are asked. Every test has a 1 in 20 chance of producing an "abnormal" result, which then needs more tests. Why did we choose mean +/- 2SD to be "normal" in medicine? Deming, master of Lean, only ever took mean +/- 3SD as possibly worthy of interest. We need results in a timely fashion, but only the results we want to know. A "Positive" D dimer can cause chaos in a patient's management, when it is done "just in case". Only do a test to help the diagnosis or management of the patient, not just to please a senior or just in case someone asks for it.

Repeating previous tests just because it is so hard to find the last result – frequently happens with echo cardiograms in our hospital, also many bloods are repeated e.g. thyroid function, B12, folate just because it is hard to find the last result. IT systems must make it easy to find and see the results of previous tests, and avoid premature duplications of tests.

Doing things just in case a particular diagnosis may apply and attract income e.g. i.v. antibiotics "just in case" this is Community Acquired Pneumonia so we get our QIPP points, but the final diagnosis was infective exacerbation of COPD. We wasted a cannula, the cost of the antibiotics, the time of the nurse drawing up and administering the antibiotics, and exposed the patient to the risks of an intravenous drug and risks of cannula. During all of that we may have delayed picking up on another patient who was deteriorating, but we got our QIPP money!

Repeated full clerkings, repeated writing drug lists, repeated documentation of vital signs in multiple places. All of these are "no added value". Brief update clerkings particularly focussing on the current history are fine. I often see a full clerking by an A+E SHO, which is then photocopied at great expense, and then the whole clerking redone and rewritten by a medical SHO, in a case, which was "barn door" obvious a medical case. Then the photocopy is not filed and lost, or misfiled. What would have been "right first time" for the patient would have been to see an AMU doctor straight off. Why do we put patients through different time consuming pathways depending only on whether they walked into A+E, dialled 999 or phoned the GP? Two patients with identical conditions: one can have greatly delayed care because of duplicate clerkings and an argument about referral between A+E and AMU. In our hospital the patient's drug list may well be duplicated by hand 6 to 8 times during an admission, so that we have to employ Pharmacy Technicians to correct the errors. A lean process would have the list entered once and stored in a database, then updated for changes. Any necessary "duplication" e.g. into a drugs list to take home, would be achieved by infallible "copy and paste" by the software. The total time released by a process like this would be huge. The released time could then be applied to important activities like making sure the patient understood the importance of the medications. Much of a patient's history is fixed fact, yet we expect Juniors to retake the history of smoking on each admission and the past medical history. Save the fixed facts into a database, produce brief printed summaries of this, release time for the Juniors to take more detailed histories of the current episode.

Doing more tests because the first test gave an unexpected finding inconsistent with patient's current condition e.g. a carotid Doppler is done because a patient has had a TIA. The Doppler scan shows a small impalpable incidental thyroid nodule which is almost certainly benign. At the very least this generates a referral to endocrinology, and most likely also generates a request for TSH, T4, thyroid auto-

antibodies and maybe even isotope scans, cytology and even a diagnostic hemi-thyroidectomy. This sort of over investigation is increasingly common as scans become more sophisticated. I cannot recall the last time I saw a "normal" echocardiogram, because the sonographer can see to much detail. This then generates time consuming wasteful referrals to cardiology.

Keeping on doing futile stuff – patients clearly at end of life and we are futilely exerting hopeless effort, often at great expense and interfering with a calm end of life. This is common with admissions at night from nursing homes and from oncology clinics**.** We need instant access to previous medical records to be certain in our overall assessment of these patients and to apply the "Gold Service Framework".

Doing tests to satisfy a protocol – any patient admitted with cardiac failure seems to need an echocardiogram if one has not been done in the last year. This is to satisfy a protocol and earn income for "doing the right thing". Many patients do not need a repeat echo, and those that do then need to wait because there are so many requests needed to meet the protocol. We strive to follow the protocol because then we earn more money. This is a true waste, but reflects commercial thinking "The more we can sell, the better – period".

2. **Bed Blockers and Clutter** = **Inventory**. Our raw materials are patients and staff, investigations, treatments and monitoring

Lots of stuff held on wards in case it is needed. We fear that supplies will run out so we hoard and overstock, creating clutter. However understocking is also a problem, as is failure to lay kit out consistently. I had to walk to my "home" ward just to get a Not for CPR form, because I could not find one on the other ward. Kit runs out because we have no "Kanban" process (a simple warning when stock is low e.g. when only 10 X ray forms remain a piece of paper becomes exposed which is a request for more X ray forms).

30% of inpatients do not need to still be in an acute hospital. Patients who need daily clinical review need to be in hospital – no one else. Maybe on ward rounds these patients could be identified as "Nurse led care" requiring only a "social visit" from the ward round team, and allocated to a Nurse Consultant on the patient administration system.

Too many doctors on some rounds Most often I do not have enough doctors to form an effective team, but occasionally I have too many. Why not redeploy these to do other work elsewhere? We also tend to have too many doctors during the day and not enough at nights and weekends.

3. **Waiting = waiting**

Waiting for the Consultant to arrive – late starts waste time

Waiting to find the notes – also waiting for old notes to arrive, this is a really big waste and results in overproduction of tests. It is shameful that we do not have, as standard across the NHS, electronic notes with instant access to summarised facts about the patient and access to all clinical correspondence. Instant access to GP records is now feasible and should be rolled out across the NHS without delay.

Waiting to find the right place in the notes to read from. Notes are generally very badly filed and it can take minutes to find the notes and then the right place to read and write

Waiting to boot up software, waiting to log in, waiting to enter hospital numbers, waiting for results to show on screen. There is a toxic amount of waste in this. Some systems are so slow to boot up or log into that a patient could die before the software is even loaded. Ideally there should be no typed login, only one login to access all systems and no need to enter a patient number after login to access clinical data.

Waiting to identify which bay the patient is in, where that bay is and which bed the patient is in. Our AMU has no signs to indicate which bed is in which bay. Permanent staff know where the beds are, but others waste important time just locating the patient.

Waiting for the patient to finish toileting, eating, washing, and dressing. We seem to have inadequate staff to ensure that patients are ready for ward rounds.

Waiting to access evidence based guidance on treatments, help on diagnosis etc – the "wait" on this is so long we often just hope we can make the right diagnosis, not forget an important possible diagnosis and automatically know the right treatment. We rely on memory alone, unaided by immediate bedside access to online medical textbooks and Journals etc. We need iPADs or Tablet PCs at the bedside to access evidence based treatments, diagnosis support e.g. the BNF or www.isabelhealthcare.com. Often local guidance is almost impossible to find on Trust Intranets. The person who wrote it and published it knows where it is, but no one else can find it. Once found it is too long and wordy to read in a timely fashion.

Waiting to find a nurse to talk to then time wasted repeating to the nurse all that was said

at the bedside. Sometimes a nurse cannot be found at all, leading to further waste, as the discharge fails to occur, or treatments are not given.

Waiting to find extension numbers to phone, waiting for someone to answer. We have no effective telephone directory in our Trust, so staff phone switchboard, which then delays switch from answering outside calls.

4. **Wasted journeys and walking = Transportation**

Patients on too many wards – one male, one female ward to visit should be "standard" and this also improves team working. Safari ward rounds may take nearly twice as long per patient.

Juniors having to go from bedside to base to access PC to get more results, fetch requests forms, walking to answer bleeps – why not use mobile phones or DECT phones or more modern technology?

Patients having to go back to X ray because the night X ray was not done or was AP in bed when the patient could have stood up for a proper erect PA chest

Seeing patients "One by one" because of lack of electronic notes, laptops etc. There should be no need to return to base between patients.

5. **Not getting it right first time = Defects**. We should aim for zero defects.

Not filing notes, misfiling notes, incomplete notes, out of date notes – especially failure to update "Working Diagnosis"

Poorly written drug charts – the more errors the greater the risk of harm, the more errors the messier the chart, the greater the risk that the nurse will make an error.

Failure to make "ceiling of care" decisions results in inappropriate tests, treatments and failure to provide calm end of life

Drug omissions, wrong drugs, wrong doses – obvious consequences

Failure to review all incoming results - can have lethal consequences = "waste of a whole life". A failure to check a chest X ray during multiple ward moves may mean an operable lung cancer is missed.

Wrong diagnosis assigned to patient and not clearly corrected e.g. I had a patient who after detailed investigations definitely did not have diabetic gastro-paresis, but her notes on the post take rounds on her repeated admissions always recorded "Diagnosis – gastroparesis, Type 1 diabetes, DKA"

6. **Wasting time getting common essentials = Staff movement** – this seems very similar to transportation, but applies more to organisation of the local workplace e.g. the bedside or the procedures room

Clearly label where everything is meant to be. In our ward we have supplies of paper and request forms in Perspex holders on the wall, with labels on the Perspex. It is then easy to find a X ray form, or to see when we have run out of forms

Same place, every ward, every bed: if all supplies were in the same place on every ward work would be far swifter. For example the placing of the Alcohol hand rub should be in the same location at every bedside.

Keep commonly used supplies to hand. Instead of Juniors walking to and fro to get phlebotomy kit they could be supplied with a "Clerking Trolley" with frequently used items on the trolley.

All charts to be filed consistently. We have had any number of different nursing charts, varying from ward to ward. As far as possible they should be the same, and filed and stored in the same place and in order.

7. **Useless IT and too many forms = Unnecessary processing** - using complex equipment to undertake simple tasks.

For example our "paperless" electronic discharge summary has improved quality but involves using more paper and takes more time for all staff than our dreadful paper based discharge summary IT systems have to be smarter, swifter and easier to use than the previous process.

Nursing forms frequently duplicate data in the doctors' notes and vice versa. The same data may have to be entered manually onto multiple forms. For example the body mass index (BMI) may be calculated and entered by different staff onto different forms e.g. as part of pressure area assessment, as part of nutrition assessment, for clinical coding and on all forms the "answer" is hard to find

Too many too detailed forms fail to present data in meaningful ways, slow the pace of work and prove we have failed. For example the Waterlow Pressure Area Risk forms are difficult to complete, hard to calculate the score, the result is difficult to read and there is nowhere to document

that the pressure relieving mattress has been ordered. The form is usually incompletely filled out, so that in a court case it is very easy to prove the work was done badly. A form that asked "In your professional judgement does the patient need a pressure relieving mattress? If Yes, have you ordered it and has it been put under the patient?" would be much more pragmatic for the pace of work, easier to understand and far more likely to be completed fully.

Processes to order and supply essential kit are laborious and slow. Usually I buy kit that I need and want rather than face the rigours of buying through our supplies department.

Processes to report and resolve incidents are laborious and ineffective. I have worked 19 years as a Consultant, have reported many incidents, yet have had no reports of resolved problems. I sit on committees that I see counting incidents, reporting statistics, but not solving problems permanently.
Some forms of waste do not seem to fit neatly into the seven categories

Wrong person doing wrong job e.g. why do I have an expensive Junior Doctor writing in the notes, when a good medical secretary could write more sense and more legibly on the round, or even type on the hoof, print from a network printer and put the typed entry into the notes? Why does the Junior have to write up, or type up the "TTO" when we could "sign off" the drug chart on the ward round and the pharmacist or pharmacy technician type up the list? Why on Sundays when there are few doctors to do diagnosis, treatment and patient reviews, do we make them take blood samples? Why do we have senior nurses doing simple audits e.g. single sex ward audits?

Too much time wasted on documentation of work done. We suffer from the belief that if it was not documented in detail, it was not done. If pilots had to document every action, planes would crash as they ran out of fuel in the skies, as the pilots filled in forms. Data must be collected by the IT systems as automatically as possible. Evidence of "Job done" must be lightweight so that it does not slow the necessary pace of work.

Too many staff investigating why it went wrong, not enough getting it right first time. We have managers and senior clinicians spending thousands of hours investigating incidents and complaints, producing policies and guidelines and filling our email inboxes with megabytes of imperatives. If we staffed the wards so that the frontline work could be done safely and swiftly, and dealt with the other wastes, we could manage maybe with 10% of the time resource spent in these "Governance" activities. We would also cut litigation and reduce insurance premiums.

I think the moaning and complaining doctors described at the start of this article will have recognised the "Crap" that I have described. What they had not realised is that "Cutting the Crap" out of their working lives means becoming "Clinically Lean". It is the managers who should fear us becoming advocates of Lean. The managers will have to come out of their offices, cosy meetings, get away from their lengthy wordy policies sent out by email and come join us in the workplace, if they want to avoid redundancy once we become advocates of "Clinically Lean".

Lean simply means knowing what is important and arranging the workplace to make it as likely and easy as possible to get the important work done "right first time" as swiftly as possible. Clinical staff relish meeting and working with patients and making the right diagnoses, informing on prognosis, using the necessary minimum investigations and treatments and providing high quality clinical care to the curable, those with chronic diseases and those coming to the end of life. "Cutting the Crap" and becoming "Clinically Lean" will free us to do this as effectively as possible, to the patients' and our benefit.