Aggravations

The obstructive colleague

The obstructive colleague is a feature of any workplace, but is perhaps nowhere more exasperating than in the clinical environment. It is remarkable that, as clinicians used to coolly and methodically analysing our patients, we don't apply the same pragmatic approach to problematic colleagues.

Obstruction, for example, commonly occurs both within the bowel and in interpersonal communication. Causes of both can be congenital or acquired, benign or malignant. The clinician must always consider that the cause may be iatrogenic: is my communication optimal, or am I inducing this obstruction? The cause can be intrinsic; a genuine delight in being obnoxious. More often, the cause is extrinsic; intractable external pressures on an individual leading to increasingly sluggish information transit before an obstructive episode.

Avoid rectal tubes

DUNCAN SMITH

The obstruction may be partial ("I will review your patient, but only after you have done X, Y, and Z menial and unnecessary tasks") or complete ("I won't review your patient or offer any helpful advice"). Unlike bowel obstruction, there may be no cardinal signs of an obstructive colleague, though absolute constipation might still be suspected.

As with the bowel, colleagues prone to obstruct should be initially managed with gentle conservative measures. If there is a suspicion that the colleague is becoming toxic or failing to improve, a more drastic interventional approach may be favoured. The use of rectal tubes ought to be avoided.

All clinicians should be mindful of a notable scenario where aggressive management is contraindicated: paralytic ileus, the inability to physically move from a location due to an incessant barrage of pages. Management here should always be supportive, including reassurance and rehydration.

Roshan Vijayan core surgical trainee, Oxford University Hospitals NHS Trust, Oxford, UK roshan.vijayan@gmail.com
Gregory Scott neurology research fellow, Imperial College Healthcare NHS Trust, London, UK

Competing interests: None declared.

Cite this as: *BMJ* 2013;347:f5341

Faulty surgical equipment: 10 point plan to safe flinging

Working in a hospital operating room is stressful, and stress can lead to adverse events.[1] Several factors contribute to a surgeon's stress, especially equipment malfunction.[2] The traditional way for surgeons to deal with flawed surgical instruments is to fling them across the operating suite. This action is expedient, acts to alleviate stress, and follows the safety guidelines for hands-free passing of instruments.

However, we can find no peer reviewed publications to guide safe operative instrument flinging. To help fill this void, we have adapted recommendations from other safety oriented organisations.[3 4]

The fundamental rules for safe instrument flinging are:

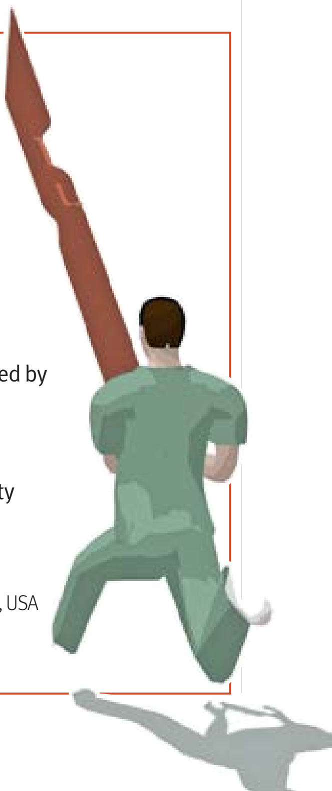
1. "Think first. Fling second."
2. Before flinging, identify your target and the area beyond it.
3. Aim for the corner farthest from the operative field.
4. Do not fling at a person.
5. Never fling an instrument that is unfamiliar.
6. Never use alcohol or over the counter, prescription, or other drugs before flinging.
7. Be sure you know how to safely close the instrument.
8. Always wear proper eye protection.
9. Be aware that certain instruments require special precautions, such as those tethered by cords or tubing.
10. Never fling an instrument straight up into the air.

We hope that this or a similar policy will be adopted by your hospital, and that following these suggestions will allow you to perform the rapid elimination of faulty instruments in a quick and safe manner.

Richard L Hutchison hand surgeon, Children's Mercy Hospitals, Orthopaedic Surgery, Kansas City, MO 64108, USA
Maureen A Hirthler emergency medicine physician, University of Missouri-Kansas City, Kansas City, MO, USA

Full details including references and competing interests are in the version on bmj.com.

Cite this as: *BMJ* 2013;347:f7363



Aggravations

Phoning the patient's general practitioner

Jessica Webb and **David Ward** investigated how long it takes for hospital doctors to speak to patients' general practitioners by telephone


MIKE KEMP/CORBIS

Outcomes of telephone calls to general practitioner (GP) surgeries

Patient	Outcome	Time taken for call to be answered by receptionist	Time of call
Transferred to GP			
9	Transferred in 25 s	10 s	1550
1	Transferred in 48 s	1 min 24 s	1025
22	Transferred in 55 s	56 s	
10	Transferred in 1 min	53 s	1215
16	Transferred in 1 min 58 s	10 s	1006
20	Transferred in 5 min 5 s	1 minute 57 s	
12	Second call; transferred in 2 min 6 s (first call; surgery closed at 1205)	20 s	1440
Message taken—GP called back			
8	Called back in 1 hour	21 s	1000
25	Called back in 2 hours	30 s	
13	Called back in 2 hours	2 min 16 s	
11	Called back in 3 hours	20 s	1125
23	Called back in 24 hours	25 s	
4	Second call; called back in 1 hour (first call; surgery closed at 1215)	10 s	1100
17	Second call; called back in 2 hours (first call; surgery closed at 1415)	10 s	1550
Virtual appointments			
3	Virtual appointment given	1 min	1440
21	Virtual appointment given	27 s	
5	Second call; virtual appointment given (first call; surgery closed at 1500)	33 s	1445
Other outcomes			
7	Spoke to receptionist and message taken; GP not phoned back	38 s	1015
2	Recorded message; unable to leave message	10 s	1530; 1130
14	Recorded message; unable to leave message	2 min 48 s	1430; 1130
15	Surgery closed; unable to leave message	43 s	1120; 1505
19	Phone number out of service despite checking on website	—	1105; 1400
24	Surgery closed; followed instructions to call mobile phone, but unable to leave message	45 s	1455; 1125

Patients 6 and 18 had the same GPs as other patients.

The General Medical Council recognises the importance of effective communication and recommends that we should work collaboratively with colleagues to maintain or improve care of patients, as stated in *Good Medical Practice*.[1] Effective communication between primary and secondary care is pivotal to ensure the best outcome for patients, relieving their anxiety and confusion, and preventing prescribing errors. General practice has led the way in improving information technology facilities in the NHS and computerising practices,[2] although the telephone remains the main route of non-elective contact between hospital doctors and general practitioners (GPs). Communication by letter has delays and can cause confusion, with letters overlapping or getting lost. GPs ask their patients and the community for feedback on their experiences of calling the surgery and how long they had to wait.[3] To date, no studies have looked at how long hospital doctors wait to speak to a GP.

Methods

The aim of this study was to establish how long it takes for doctors to speak to patients' GPs. One person phoned the GPs of 25 patients on our main cardiology ward over three consecutive days in early September between 1000 and 1230 and between 1400 and 1600. A stop clock was used to record the time taken for the phone to be answered and whether the receptionist was able to put the call directly through to the GP, a virtual appointment was made, or a message was left with a mobile phone number and if and when the call was returned. All the receptionists were given the same information: that the call was to update the GP on the patient's condition.

Jessica Webb cardiology specialist registrar
jesswebb@inbox.com
David E Ward cardiology consultant, St George's Hospital, London SW17 0QT, UK

Results

Two sets of patients had the same GP, so the surgeries were contacted only once. The table shows the outcomes of the 23 phone calls, grouped from "best" to "worst." The mean time taken for our calls to be answered by a receptionist was 47 seconds. We spoke to 14 GPs: seven receptionists put our call straight through to the correct GP (in some cases this was in 25 seconds), and seven of eight GPs responded to our message by phoning the mobile number that was left with the receptionist. Three virtual appointments were made, and times were given that the GP would call; these were cancelled immediately. We did not manage to speak to five surgeries, despite phoning them twice, and one GP did not return our call (called on the first day of the study).

We could not speak to five surgeries that had recorded messages with no opportunity to leave a message

Discussion

In total, we spoke to 14 GPs and were given three virtual appointments. We felt that these surgeries excelled; GPs obviously spend a considerable amount of time in clinic and out of the surgeries, so expecting a GP to be available immediately for a phone call from a hospital is unrealistic. We were unable to speak to six GPs over the three day study. Clearly, if the call had been crucially important we would have phoned again, and the GP who did not phone back may not have prioritised an "update" about a patient in hospital. We could not speak to five surgeries that had recorded messages with no opportunity to leave a message. Many reasons exist why surgeries may have recorded messages during the day, and more data collection is needed to understand the significance of this. One surgery had a number that was out of service, which was later found to be repaired.

On speaking to the GPs, we told them that this was an exercise to establish how easily hospital doctors can speak to GPs and not to update them on the patient's condition. They all felt that communication could be improved by introducing an email service, and some of them mentioned the other side to this equation—how difficult it can be for GPs to speak to hospital doctors.

Conclusion

Despite limitations, these results are important as they show that most general practices offer excellent telephone communication but that some are more challenging. We believe that relying on phone calls is archaic and that these results should stimulate a larger, more detailed study examining how much we rely on phone calls between primary and secondary care and how electronic communication with nominated email contacts could improve outcomes. We believe that more should be done to ensure safe and effective communication across the board to allow the best practice for all patients.

Full details including references and competing interests are in the version on bmj.com.

Cite this as: *BMJ* 2013;347:f7048

Knots after anaesthetic procedures

Like death and taxes, knots are an immutable fact of life. Acceptance rather than anger is therefore the mature response, counsel **Clemens Barends and Anthony Absalom**

Why does every anaesthetic procedure involve a trail of lines and tubes resembling spaghetti? Apart from the frustration this mess generates, it can also be detrimental to patient safety. Monitoring equipment can become undone, intravenous drips can be removed, and endotracheal tubes can become dislodged. Is it carelessness to allow this situation to occur and do we have to apologise at handovers for such a mess? How do these knots arise despite our attempts to prevent them? Studies of knots by mathematicians, physicists, and statisticians provide a reassuring answer.

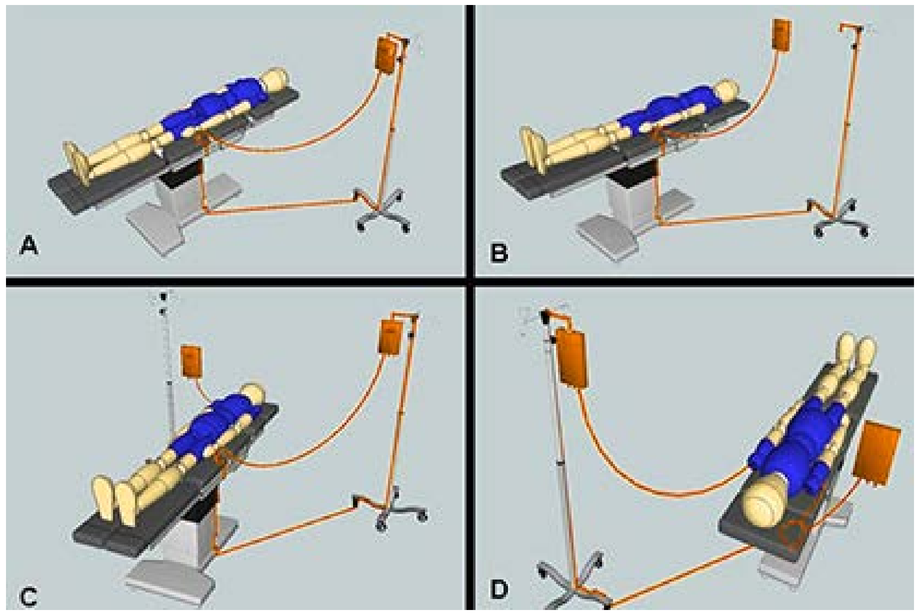


Fig 2 | (A) One topological loop, no knots can be formed. (B) One opened topological loop, two loose ends. (C) Two intravenous drips; one loop is opened to move the intravenous bags. (D) As for C, but different point of view. The opened loop has also formed its own, new loop

Mathematics

Topology and knot theory describe how knots can only be formed by a line crossing under and then over itself. A circle can never create a true knot as there are no loose ends for a crossover to occur. Creating a knot from a circular line requires cutting the line, passing one end of the line through a loop, and then fusing the ends.[1] The necessity of loose ends is elementary to our problem (fig 1).

Consider a loose end in a three dimensional space. The line loops as it winds through this space. Somewhere the line will run into itself. When it collides with its loop, it must go over or under this point (fig 1), and it has a 1:2 chance of doing either—that is, there is a 1:2 chance of knot formation. When a line runs into itself again it has a 1:2 chance of forming a knot. The chances of no knot being formed at all (neither the first, second, nor both) have fallen to $1/2\times1/2=1/4$.

Here's a thought experiment. A patient with one intravenous drip forms a so-called topological loop: patient, intravenous drip, operating table, and floor. With the loop intact, knot formation is impossible: there are no loose ends (fig 2A). By removing the intravenous drip from the pole a loose end is created that can cross the line (fig 2B) and thus a knot can potentially be formed. With two intravenous drips, the chances of one or more knots not being formed dwindle. The possibilities of knot formation escalate if the intravenous drip is shifted to the other side of the bed, the pole with the still intact loop moved (fig 2C), or the fluid line loops on itself (fig 2D).

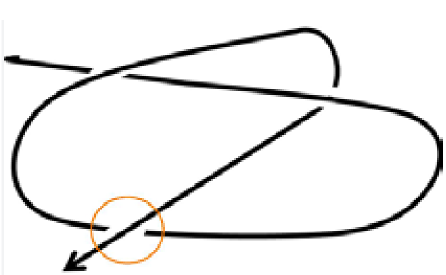


Fig 1 | Schematic of knot formation

Clemens R M Barends anaesthetics registrar, University Medical Centre Groningen, Department of Anaesthesiology, Groningen, Netherlands **clemensbarends@gmail.com**
Anthony R Absalom professor of anaesthesia, consultant anaesthetist, University Medical Centre Groningen, Department of Anaesthesiology, Groningen, Netherlands

Even with patients requiring only basic life support and monitoring, as many as nine attached lines may be present. The probability of not developing one or more knots with n lines is $1/2^n$. With one loop for each line and one crossing for each loop, the chances of nine lines not ending up with one or more knots are $1/2^9$ or 1:512. And that assumes no simultaneous movement of other lines.

Physics

Is moving an intravenous bag enough for spontaneous knot formation? According to the work of Ig Nobel 2008 laureates, physicists Raymer and Smith, the answer is "yes."[2,3] They dropped open ended pieces of string into a box and jumbled them around. The resulting tangles were carefully lifted and the ends joined and examined. All known prime knots (mathematically unique knots) of up to 11 crossings formed "spontaneously." The knotting probability approached 100%.[2,3]

Statistical mechanics

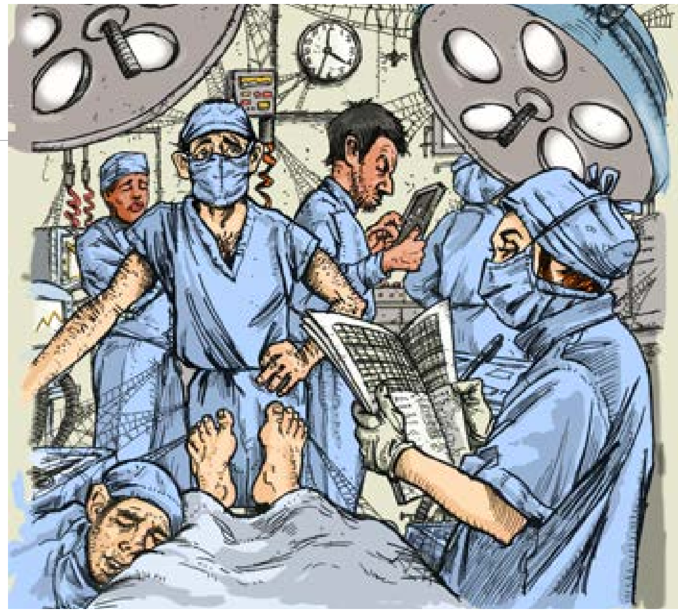
The combinations of knots in lines are almost limitless. In statistical mechanics each combination is called a microstate. Only one microstate creates the macrostate of "no knots at all," whereas an almost infinite number of microstates can generate the macrostate "spaghetti." The second law of thermodynamics dictates that a system tends towards the macrostate with the largest number of possible microstates. Thus, knot formation is governed by a law of nature.

Conclusion

The number of lines and the unavoidable movements they make over time are factors that maximise the chances of knot formation. Knots form spontaneously when lines move. The phenomenon is even subject to a law of nature. Ending an anaesthetic procedure with knots is a fact of life, requiring only calmness and patience. Resistance is futile, and apologies are unnecessary.

Contributors: CRMB conceived the study, reviewed the literature, and was responsible for the graphics. He is guarantor. ARA critically reviewed the paper.

Cite this as: *BMJ* 2013;347:f6735



DUNCAN SMITH

Watching cement dry

A B Scrimshire and E M Holt calculate how much slow drying bone cement costs the NHS in time and money

Polymethyl-methacrylate (PMMA), synthesised in 1902, has many uses, including in aircraft windows and dentures. But it was not until 1959 that PMMA cement (bone cement) was used in hip replacements, to secure femoral and acetabular implants, by a UK pioneer of the hip replacement operation, John Charnley. Antibiotics were added to the cement to reduce infection rates, and today over a million implants have been fixed with bone cement worldwide.[1]

Bone cement typically comes in two parts: a dry powder and a liquid component.[2] The cementing process has four stages: mixing of the two components, by hand in a sterile bowl or in a sealed vacuum container, to remove fumes and small air bubbles and reduce the cement's porosity; the "pick-up" stage, when the consistency of the cement changes enough for it to become workable; the working stage, during which it retains a workable consistency and is applied to bone or implants and the implants inserted; and the setting stage, when the cement hardens (dries).[3] After implant insertion there may be some activity, but generally the operating team is simply waiting and watching the cement dry before proceeding.

Cement type, warmer temperature (of the theatre, patient, and cement), lower humidity, and vacuum mixing can reduce the time taken for cement to dry.[4,5]

We aimed to uncover the financial cost to the NHS in England and Wales of watching bone cement dry.

Methods

The optimum operating theatre temperature for working with bone cement is said to be 18.3°C,[6] with standard humidity around 55%.[7] Data on cement characteristics at 18.3°C for 15 different bone cements, hand mixed at standard humidity, have been analysed.[3,8-13]

We collected data on the number of cemented lower limb orthopaedic procedures performed in NHS hospitals in 2012 from the National Joint Registry and the National Hip Fracture Database.[14,15] Data on staff pay came from the British Medical Association and NHS Careers.[16-18] With these data we estimated the total cost of watching cement dry.

Results

The mean time from the start to the end of the cementing process for the 15 cements analysed was 13 minutes. Typically implants are inserted no later than six minutes into the cementing process.[19,20] Therefore an average of seven minutes in each procedure was spent watching cement dry.

From 1 April 2011 to 31 March 2012 a total of 18 530 elective primary cemented hip replacements, 9185 hybrid hip replacements, 3480 cemented hip revisions (2139 femoral prostheses and 1341 acetabular), 47 797 cemented primary knee replacements, 247 hybrid knee replacements, and 15 cemented primary ankle replacements took place in NHS hospitals.[14,21] Hybrid procedures are those that use a combination of cemented and uncemented implants.[22,23] From 1 January 2011 to 31 December 2011 a total of 20 920 cemented hip hemiarthroplasties took place for fractured neck of femur.[15] These figures give an annual total of 100 174 lower limb orthopaedic procedures using bone cement in NHS hospitals.

Given a time spent watching cement dry of seven minutes in each procedure, a total of 7×100 174 procedures=701 218 minutes (11 687 hours or 487 days or 1.33 years) is spent watching cement dry in the NHS each year.

An operating team for joint replacement consists of a consultant anaesthetist, an anaesthetic assistant, a consultant orthopaedic surgeon, an orthopaedic registrar, a scrub nurse, and an operating department practitioner. The annual salary for a first year consultant anaesthetist is £75 249 (€90 474; $123 062), for a band 6 anaesthetic assistant £25 783, a first year orthopaedic consultant £75 249, a first year orthopaedic registrar £32 852, a band 6 scrub nurse £25 783, and a band 5 operating department practitioner £21 388.[16-18] These figures give a total cost of £256 304 a year.

These pay scales are for a standard 40 hour working week, not including banding. To adjust for continuous operating the cost must be adjusted by a factor of 4.2 (168 hours a week÷40). Therefore each year the NHS spends a total of £1.43m (1.33×£256 304×4.2) having specialists watch cement dry in lower limb orthopaedic surgery.

Discussion

The National Joint Registry annual report for 2012 noted a decline in the use of cemented prostheses, with an increasing number of surgeons preferring non-cemented implants. However, as our study shows, cementing is still common practice, and the drying process is proving costly.

In our calculation we used the most junior pay bands and therefore the cheapest. We assumed that cement was prepared and used only once in each procedure, which may not always be the case. These assumptions mean our final figure may be an underestimate. But we also assumed that cements were hand mixed and that after insertion of the implant the entire operating team was simply waiting for the cement to dry, which may not always be the case. The anaesthetist may be listening to the beeping of his or her machines for a transient drop in blood pressure or oxygen saturations after cement insertion, as occurs in around 19% of patients.[24] The surgeon and scrub team may use this time to reflect, teach, clear their work surfaces, and plan their next steps. Our assumption that theatre staff take on a state of statuesque inactivity after implant insertion therefore counters the previous assumptions, improving the reliability of our calculation of the cost of watching cement dry.

Given the current drive for cost savings in the NHS, it may seem ridiculous that we spend more than £1.4m a year watching cement dry. However, while perhaps irritating, it is a necessary step, as improper surgical handling of bone cement is a major cause of prosthetic loosening.[25]

Perhaps more use of cheaper implants, uncemented implants, and new technologies, such as faster setting cement,[26] will reduce this cost. However, it is likely that such developments would give rise to complications of their own.[27]

Full details including references and competing interests are in the version on bmj.com.

Cite this as: *BMJ* 2013;347:f7395

A B Scrimshire core surgical trainee year 1
Ashley.Scrimshire@NHS.net
E M Holt consultant orthopaedic surgeon
University Hospital South Manchester, North West Deanery, Manchester

Lack of evidence for clinical and health policy decisions

Sean Tunis has come up with a molecular biology based theory for the large amount of uncertainty in healthcare

A major frustration for clinical and health policy decision makers is the limited amount of relevant and credible evidence available to make evidence based decisions, a perspective conveyed in many health technology assessments and systematic reviews with some version of the following phrase: "Because of the paucity of high quality evidence, the data available—though voluminous—may have little meaning or value for informing clinical practice."[1]

Passive diffusion

Many variations of this statement can be found, differentiated by subtle nuances of judgment reflected in the phrasing of the report's executive summary—ranging from simple resignation to incredulity, exasperation, and hostility. This epidemic of ignorance is particularly perplexing given the fact that about 19 000 new randomized clinical trials are published each year, making one wonder how generating this amount of data while leaving so many gaps in knowledge is possible.

In seeking to understand this phenomenon, I have sought insights from a wide range of intellectual disciplines, eventually settling on the field of molecular biology, given the rapidly growing expectation that all health related phenomena be explained at the genome or molecular level. This work has led to the discovery of a potential explanation for the massive amount of uncertainty in healthcare and, more importantly, some insights regarding possible strategies to improve the quality and relevance of future primary research. My observations are shown in the figure, The "Molecular Basis of Uncertainty."

Sean R Tunis president and CEO, Center for Medical Technology Policy, 401 East Pratt Street, Suite 631, Baltimore, MD 21202, USA **sean.tunis@cmtpnet.org**

The figure illustrates the flow of information from the extracellular environment of the clinical research enterprise to the intracellular milieu in which decision makers are generally confined. New scientific activities by clinical and health services researchers have generally been prompted by intellectual curiosity, often with limited awareness of or interest in the realities of the intracellular conditions that influence decision makers. Most of the resulting evidence moves slowly in the direction of decision makers through the cell membrane by passive diffusion, a process labeled "knowledge translation 1," which is an energy consuming, inefficient pathway that contributes to the lengthy time lag between the publication of new evidence and the effect of that evidence on practice.[2] The speed of translation can sometimes be increased through an active transport mechanism involving the systematic collection and analysis of scientific evidence by health technology assessment organizations (via knowledge translation 2—a pathway first demonstrated in a laboratory at Johns Hopkins). However, the efficiency of information transfer is significantly reduced after knowledge translation 2 by the presence of the low affinity receptors for evidence surrounding the decision makers, a phenomenon sometimes referred to as the "knowledge translation blockade," and the focus of study in the field of implementation science.[3]

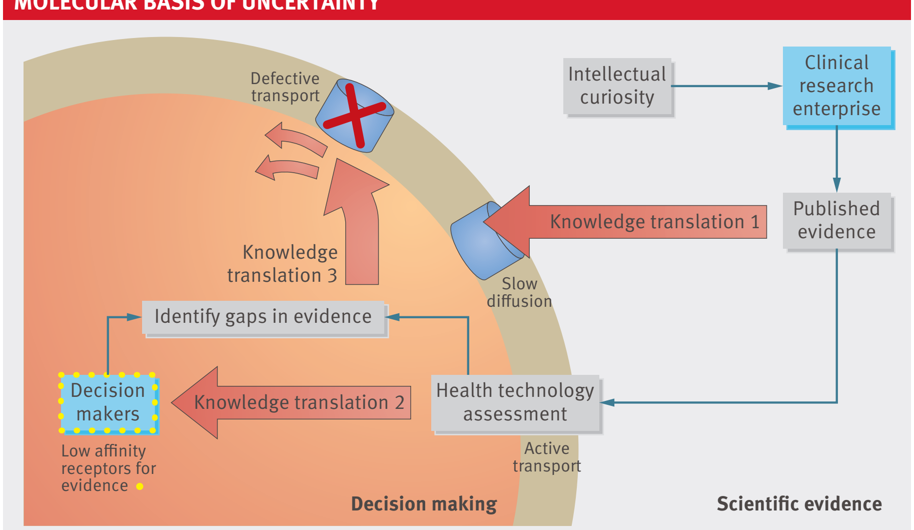
Failure to communicate these knowledge gaps back to the evidence generating community results in a toxic environment that may lead eventually to cell death

In addition to accelerating evidence transfer toward decision makers, the health technology assessment process produces a critically important intermediate byproduct—a detailed characterization of the gaps in evidence highlighted by the body of evidence reviewed. Several high priority research questions are generally identified in these reports, along with a description of the common methodological deficiencies that reduce their utility for decision making.[4] Unfortunately, the communication of these research needs and methodological recommendations through the cell membrane and back to the clinical research enterprise is severely impaired by defective transport at knowledge translation 3. The failure to communicate these knowledge gaps back to the evidence generating community leads to the gradual accumulation of ignorance inside the cell, resulting in a toxic environment that may lead eventually to cell death.

Targeted interventions

It has not escaped my notice that the specific pathways I have postulated immediately suggest several potential mechanisms to improve the quality and relevance of future primary research.[5] Above all, a need exists to identify targeted interventions that promote greater flow of information between clinical and health policy decision makers and the clinical research enterprise, ideally retaining some element of intellectual curiosity. The health technology assessment program at the National Institutes of Health has recognized the importance of the knowledge translation 3 pathway for the past 20 years.[6] More recently, a dedicated research program in the United States has begun to focus substantial attention and resources to facilitate cross membrane signaling at knowledge translation 3, with an emphasis on direct involvement of patients in this process.[7]

MOLECULAR BASIS OF UNCERTAINTY



A subcellular hypothesis to explain widespread gaps in evidence identified by systematic reviews

An earlier version of this diagram appeared in *Asian Hospital and Healthcare Management* (issue 19, 2009)

I am grateful to Justine Seidenfeld for translating a rough pen sketch on a paper napkin into the original version of the figure presented here.

Full details including references and competing interests are in the version on bmj.com.

Cite this as: *BMJ* 2013;347:f7155

Deciding authorship order

The order of authors on this article was determined by an indisputable rule developed in the school playground, the "bagsy"

Authorship of academic papers has become increasingly problematic in recent years. Many ambitious studies require large consortia in which the contributions of individuals are difficult to discern from a simple list of authors,[1] leading some groups to do without authors altogether and others to call for wholesale reform of the system.[2,3] Funding decisions place increasing reliance on publication records, and research quality measures place particular weight on authors' positions.[4] This can lead to many problems.[5] Authors can be jostled out of their deserved position by the spurious elevation of minor contributors to the prestigious last (senior) authorship position.[6] Confusing attempts to share credit can also occur through use of the inevitably misleading phrase "these authors contributed equally to this work."[7]

Human interaction in many fields encounters the problem of how to allocate a perceived future reward. We report one solution originating from a highly conserved social environment with an innate sense of fairness, in which a near-ubiquitous set of rules has gained close to universal peer acceptance: the school playground.[8] The rule developed herein for the allocation of reward has been refined over centuries, spanning multifarious social, cultural, and language barriers; it seems to be based on unassailable logic and rapidly produces incontrovertible decisions. It is the "bagsy."

Bagsy (US: "Dibs," "Yoink;" Fr: "Prems"), deriving from the phrase "bags I," is an informal word to indicate success in securing something for oneself.[9] Its utterance indicates an irrefutable claim to the object sought by the speaker. The bagsy may be an effective and readily accepted solution to the problem of authorship ordering.

Two of us (JKB, AJ) inadvertently put this hypothesis to the test, and the outcome of this test is described here. AJ and JKB (both anaesthetists) contacted colleagues by email suggesting a neat and straightforward study with a high probability of publication in a prestigious journal. No authorship claim was discussed at that stage. We retrospectively recorded key measures of "bagsy activity" (time to first bagsy, mean bagsy delay, and interval to global acceptance).

P M Brennan clinical lecturer in neurosurgery, University of Edinburgh, Department of Neurosurgery, Western General Hospital, Edinburgh EH4 2XU, UK
A Jubb clinical lecturer in anaesthesia and intensive care medicine
J K Baillie clinical lecturer in anaesthesia and intensive care medicine, University of Edinburgh, Department of Anaesthesia, Critical Care and Pain Medicine, Royal Infirmary of Edinburgh, Edinburgh EH16 4SA, UK
j.k.baillie@ed.ac.uk
R W Partridge clinical lecturer in paediatric surgery, Royal Hospital for Sick Children, Edinburgh EH9 1LF, UK

DUNCAN SMITH

The time to first bagsy was five hours. The first colleague (neurosurgery) to respond made some fairly pedestrian alterations to the study design and bagsied the first author position. The second responder (paediatric surgery) replied after a further 14 minutes (mean bagsy delay five hours seven minutes) and bagsied the last (most prestigious) spot. After a brief confusion when another author (anaesthesia) called "shotgun" to no avail (in some cultures, shotgun is thought to usurp bagsy), this arrangement was accepted as irrefragably fair after a further delay of 184 minutes (interval to global acceptance: eight hours eight minutes).

The trend towards faster bagsying among surgical colleagues is consistent with previous work showing the superior efficiency and intellect of surgeons

This study shows the potential utility of the bagsy system as a solution to the increasingly intractable problems of allocation of authorship on research papers. Long term follow-up studies will be needed to identify adverse effects and explore the potential for harm. So far, we are all still on speaking terms. Although this study was not designed to determine specialty specific effects, the trend towards faster bagsying among surgical colleagues is of interest and consistent with previous, albeit catastrophically flawed, work showing the superior efficiency and intellect of surgeons.[10,11] We recognise that one limitation of the study is the uncertain generalisability of our findings to other populations. We cannot rule out significant cultural biases affecting this system, as the two surgeons were both brought up in Yorkshire. The proposal for authorship agreements to be made before the start of a study is sage, but a danger remains that, especially in larger studies, multi-author blindness will prevent effective control of jostling behaviours less equitable than the bagsy.

GLOSSARY

Bagsy[12]—To claim something for yourself by uttering the word "bagsy" followed by the object of your desire

Shotgun[12]—First person to call "shotgun!" earns the privilege of sitting in the front passenger seat of an automobile

Yorkshireman[12]—A man from Yorkshire. A highly coveted attribute achievable only by having a mother with sufficient foresight. Known for generosity of spirit in all matters financial

Full details including references and competing interests are in the version on bmj.com.

Cite this as: *BMJ* 2013;347:f7182