Idea Notebook
Innovative Ideas for Improving Emergency Services in the NHS
Generated by LMP 2 Participant in the Royal Mail Innovation Lab
Rugby, January 2004

Summary

Sixty-five health care improvement leaders were trained in creative thinking and asked to generate innovative ideas for improvement in NHS Emergency Services. In about 2.5 hours of idea generation using three deliberate techniques of directed creativity, this group generated 197 Idea Capture Worksheets. From these, 70 unique and plausible ideas were initially harvested (see attachment). From among these 70, 16 (~25%) were further harvested by the faculty and are described in more detail in this Idea Notebook.

Many of these ideas are highly innovative and hold promise for exceeding targets and making major improvements in clinical, process flow, and financial outcomes.

These ideas are being forwarded to colleagues in the SHAs and the Modernisation Agency to encourage pilot testing and movement forward in the innovation process.

Situation

Sixty-five improvement leaders recently held a two-day session at Coton House in Rugby as part of the Leading Modernisation Programme (LMP). One of the skills of successful improvement leaders is the ability to challenge conventional thinking and develop innovative ideas for improvement. To address this, Lynne Maher (MA Head of Innovation Strategy) and Paul Plsek (external consultant specialising in creative thinking and innovation) conducted a workshop on creativity and innovation. Participants were exposed to key principles of creative thinking (e.g., anyone can do it; it involves the mental processes of attention, escape, and movement; reserve judgment for later; go for quantity when generating ideas, etc.) and taken through a creative thinking "warm up" exercise. We also introduced Idea Capture Worksheets and described the overall innovation process (the DirectedCreativity™ Cycle).
To ground the workshop in reality, we briefed participants on a case study from the MA’s Emergency Services Collaborative that described the actual flow of care for an elderly man who collapses at home and is subsequently seen by his GP and transported to the A&E. The workshop goal was to generate creative ideas for improving Emergency Services. Participants were not constrained by the events in the case, but could use it to stay grounded as they generated ideas.

Coton House is a training facility that also houses the Royal Mail’s Innovation Lab. The Lab is a creative space with several rooms with floor-to-ceiling whiteboards for idea capture, tables for small group work, and a variety of visual and tactile stimuli to support unusual thinking (for example, toys, pictures, magazines, computer workstations, an unusual entry-way in which participants are seemingly transported to another world and told to leave behind past ways of thinking, etc.). Two groups of about 30 participants spent two hours each in the Lab following the plenary workshop.

**Tools Used to Stimulate Creative Thinking**

Participants were led by faculty through 3 creative idea-generation tools:

- **Simple Rules.** What are some of the simple rules that seem to drive behaviour and systems of emergency care today? Break these rules in order to come up with fresh new ideas.
  - This tool was used in the plenary workshop session with table groups of 6-7 to assure that everyone understood how to apply creativity to the Emergency Services topic and to practice using Idea Capture Worksheets.
  - Example… One current apparent simple rule is that medical care must be provided by medical professionals. If we break this rule we might imagine a system were friends and neighbours provide care. This leads to the idea of having someone in every neighbourhood trained to provide simple care and give advice about how to access more.

- **Random Pictures.** Look through magazines that you don’t normally encounter in your work. Select pictures and use the concepts depicted to stimulate creative ideas for improvements in emergency health care.
  - In the Lab, teams of three were given a stack of magazines to find pictures and do idea generation. After about 15 minutes, the teams exchanged their pictures with other teams and continued idea generation.
  - Example… A picture in a home decorating magazine of a rolling serving cart in a kitchen with places for various gadgets leads to the idea of a new sort of A&E trolley that has mobile diagnostic and information systems technology built into it to enable more rapid assessment of patients and better documentation of care.
• **Stepping Stones.** Imagine what you would do in a world where something outrageous has occurred that makes your current ways of providing emergency service impossible. From this exploration of a very unusual situation, generate creative ideas for improvement that could be applied now.
  
  o The faculty developed 10 stepping stone scenarios and posted these on the walls of one of the workrooms in the Lab. Teams of three were randomly assigned one of the scenarios for exploration and idea generation. In 30 minutes, teams were given 2-3 scenarios to work on.
  
  o **Example…** “A mysterious virus has wiped out every GP in the UK. Everyone else is completely unaffected. How can we design a direct and speedy flow to A&E that sorts only those patients who do need the skills and expertise available in the A&E and directs the rest to other resources?” This led to thinking about information kiosks where patients could go to get answers to questions and see if they should go to A&E. This further led to ideas about using Ceefax/Teletext to create an NHS Direct television channel to provide this information, or to use Internet webcams and sensors to allow patients to interact with doctors in other countries to get an initial assessment.

Teams wrote their ideas on Idea Capture Worksheets, which were collected and organised into groups of similar ideas by Mike McBride (MA Innovation and Knowledge Group Business Manager) and Lynne Maher. Ideas were displayed on a wall with an Emergency Services process map to indicate the stages of the current process that the ideas would alter.

**Results**

Participants generated 197 Idea Capture Worksheets. Some of these contained multiple ideas. Many of the ideas generated were very similar, which is not surprising given the relative lack of diversity in the group (all managers or clinicians in the health service) and the fact that everyone used the same three creativity tools. Some worksheets merely reported general directions for thought rather than a specific idea about how something could be done differently (e.g., “provide more timely service”). In addition, faculty reviewed notes on the whiteboard walls after participants left the Lab and generated a few additional worksheets to capture ideas that had not been documented by the teams. All these ideas were summarised, edited for clarity, and grouped under general headings to produce the final, detailed list of 70 ideas attached. From these, faculty compiled this Idea Notebook and identified the list of 16 ideas that seem the most promising for further development.
Some of the Best Ideas for Further Development

Experience with innovation in other industries suggests that creative ideas proceed through a “funnelling” process like the one depicted in the figure below.

Of several hundred creative ideas that might be generated, some fraction can be captured and harvested in an Idea Notebook like this one. From these, another fraction (~25%) might be selected for further development and thought (using tools such as Six Thinking Hats and the Enhancement Checklist). The purpose of all this thinking is to select the most promising ideas for pilot testing, evaluation, and eventual implementation. As the figure depicts, resources are progressively added in the process; it costs little to generate ideas, harvest some of them, and think further about some of those.

The 70 ideas documented in this Idea Notebook from among the 197 Idea Capture Worksheets generated in the sessions represent an initial harvesting. The list of 16 ideas below (~25% of the original 70) represents a further harvesting that was done by the faculty from the Rugby event. Obviously, this list might be modified by other groups who know more about which ideas might be most promising in a particular local context. The ideas are presented in the order that they appeared in the list of 70 and some ideas have been combined to create an even stronger idea.

**Sixteen ideas for further consideration and development…**

1. Manage demand for A&E services by identifying likely A&E patients (high-risk groups and individuals) and developing an aggressive prevention and rapid intervention plan. This might include developing the role of ‘Personal shoppers’—a cadre of personal health agents—who keep in touch with patients in high-risk, vulnerable groups. Another creative idea associated with this would be to give at-risk patients an ‘alarm button’, perhaps embedded in a special mobile phone, that they can push to immediately contact their GP. This device could be equipped to immediately send the patient’s vital signs.

   *We know from studies of Emergency Services systems throughout the world that a small percentage of the population use the majority of these resources. We also know that the costs associated with treatment of many...*
emergent situations goes up rapidly if diagnosis and treatment is delayed. It makes good medical as well as economic sense to identify potential heavy users, or those whose conditions could deteriorate rapidly, and focus special attention on them.

2. Get the BBC to develop massive health skills training programmes and ‘national tests’; complete with health checklists for different patient groups (e.g., elderly) that are published in all national newspapers.

The mass media in the UK are quite effective at gaining the attention of the public. The NHS could capitalise on the recent rise in interactive television programmes and craft a medically and economically sound set of health promotion messages that would be heard by the vast majority of the public. The potential future cost savings from a better-educated public could be large. This is also a good way to get some “positive press” for the NHS and would be a very public way of demonstrating a new, innovative spirit in the NHS.

3. Expert patient or expert person in your street who is trained to ‘Level 1’ can be on call to help or advise on health needs. (Note: On the Idea Capture Worksheet this was called "Mozambique model". Is something like this done there?)

The idea of widely deployed, easily accessible, friends and neighbours who can help you with information about health and access to care is appealing. If this idea has been proven effective in other countries, that would further strengthen it. Some simple research to learn more about this is warranted.

4. Train milkmen and postmen to recognise signs of poor health and give them a hot line to report on so we can intervene before crises occur. A related idea is to ask the power company to alert us if elderly have low fuel consumption.

Milkmen and postmen visit homes on a daily basis and probably already have intuitive feelings for when things might not be quite right. Further, there are suggestive data sources—like power bills—that might be useful in predicting health crises to enable more effective early intervention. There may be some legal, privacy, and liability issues to deal with here, but the idea deserves some further investigation and thought.

5. Street corner health service. For example, a ‘Health Corner Shop’ in an existing retail district could be set up to do basic diagnostics and provide information. Or, the NHS might explore innovative partnership arrangements with supermarkets such as Tesco, or chemists like Boots, to provide 24-hour diagnostic and health information service.

These ideas would take some of the demand load off currently strained A&Es. Further, with the new GMS contract, such arrangements might be both necessary (as some GPs will choose to opt out of providing out-of-hours services) and enabled (other GPs might see this as an opportunity
to staff an enhanced service). If health information and simple diagnostics were readily available through these sorts of channels, the public might seek advice sooner, thereby enabling more medically and economically effective early intervention.

6. Bank “hole in the wall’ dispenses health information. Ceefax or teletext – NHS Direct cable channel – interactive – “Press red button if you have a temperature”.

A great deal of effort and thought is currently going into finding ways to deploy modern information technology in health care. The capital and technical expertise needed to do this are barriers. It is, therefore, attractive to consider deploying health information on existing hardware resources. One piece of computing hardware that is widely deployed and accepted by the public is the banking industry’s ATM networks. The NHS could form an innovative partnership with the banking industry to explore ways to use this technology to provide answers to simple health questions, booking systems, access to lab results (the ATM network is already highly secure), and other needs. The Ceefax/Teletext idea is another example of this point. Why must we always set up separate technology systems for health care when so much technology is already out there?

7. Mobile diagnostic unit in ambulance (IT and voice dictation) forming beginning of health record. All monitoring, bloods, and x-ray done in ambulance. Digital photos sent to hospital from ambulance.

These three ideas are all part of a theme about upgrading the technology available in ambulances in order to start the care process before the patient turns up in the A&E. This could dramatically reduce A&E waits. Of course there are many technological, staffing, training, and legal liability details that would have to be worked out here; but the technology to do this already exists in principle.

8. Ambulance crews empowered to take patients to places other than hospital.

The current process of bringing patients to the A&E to sort out where they really need to go obviously leads to delays for all patients trying to access the A&E. Why not look at developing protocols that match the skills and equipment available to paramedics to appropriately divert some patients away from crowded A&Es and into the services that they actually need? The patients get faster access to what they need and crowding in the A&E is reduced. Then, over time as paramedic skills and available equipment evolves, other items could be placed on similar protocols. Using protocols to introduce this innovation assure appropriate medical input and control.

9. Work with Social Services to develop a jointly commissioned service with prescription of at-home care with hospital as a back up.

Some proportion of patients currently in hospital beds and accessing A&E would not need to be there if we had better means for caring for them at
home. If we changed the paradigm, as this idea suggests, and think of the hospital as a “back up” to home care we might find more patient-centred and cost-effective ways to deal with some illnesses. It may turn out that this idea is only medically advisable and cost effective for certain patient groups and conditions, but it would be worth the study to identify these situations.

10. Hire taxi and minibus service to supplement ambulances in providing transport for walking wounded and non-urgent.

Ambulances and paramedics are increasingly becoming a strained resource in the health system. Further, if we were to implement some of the other ideas generated here that further increase the technological sophistication available in the modern ambulance, it would be a waste to have ambulances simply transporting relatively stable patients to A&E. Family and friends in private cars might bring many of these sorts of patients to the hospital, if they were available. So why not in taxis? Local NHS organisations might establish contracts with local taxi services in which they can bill for simple transport of patients, thereby freeing ambulances for more intense and urgent work.

11. Put a primary care triage centre in all A&Es.

Rather than have potential delays in the system as patients first ring up their GPs, why not have GPs stationed in A&Es to do the initial triage and sorting? This is an idea worth exploring, especially as it might pertain to out-of-hours services, in light of the possibilities inherent in the new GMS contract.

12. Change design of bed to more like a chair so that patients and doctors are less likely to think that problem is major and requires admission; only put patient in a bed when needed.

This would be a very interesting idea to explore further! A key question, and one that could be researched, is: Do medical staff think about and behave in different ways when dealing with a patient in a bed versus dealing with the same patient in a chair? It would be interesting indeed to study the effect of this idea on diagnosis, treatment and resource use in patient groups. The chairs could be appropriately comfortable (perhaps a reclining chair) and yet still require much less space in an A&E or ward than a traditional bed or trolley.

13. Design a hammock-like bed that you could hang up wherever you needed an extra bed. Going further with this idea, let’s think about ways to use stacking systems. That is, instead of only conceiving of floor space as laid out on a horizontal plane, think about how we might use the vertical dimension.

The concept behind this idea opens up many more creative possibilities in the directions of “temporary capacity” and “use of vertical space”. We might be able to put a patient in a bed that is above another bed and this
might be useful in an A&E to handle temporary high-demand situations. Sad to say, but in today’s world where terrorist attacks or rapidly spreading epidemics might create a situation where A&Es suddenly need to double or triple their capacity in a matter of hours, it would be worth exploring these ideas. Perhaps resources could be made available from other government agencies for this exploration (e.g., Ministry of Defence)? Maybe there are already some great ideas that we might adapt from military field hospitals that need to be set up rapidly for a hard-to-predict capacity?

14. Accelerate the adoption of available near-patient testing technology.

Well of course! These technologies exist and hold promise to greatly accelerate patient flow in intensive diagnostic settings like the A&E. The NHS could form innovative partnership arrangements with equipment vendors who would probably be more that willing to cooperate and provide economic backing for trials of their devices in the NHS. There are legal and ethical safeguards to consider in forming such partnerships, but surely these could be worked out if we keep in mind the potential benefits to patients and staff from more timely availability of common lab results.

15. Attach wireless automatic timer and tracker (with GPS technology) to patient as they enter A&E. This transmits to a central system so we always know where patient is and who has been waiting longest. This information could be tied to a massive IT/SPC system in A&E or hospital that provides real time data on waits and flow on huge screens so that staff can adjust as needed.

The NHS and Modernisation Agency are developing paradigm-altering insights from the use of statistical process control (SPC) tools to analyse data on demand and capacity. One of the barriers to wide deployment of SPC and other data analysis tools is the difficulties associated with acquiring and analysing the data in real time to enable action. The technology described in this idea exists; a visit to a modern manufacturing facility or an international package courier such as FedEx would easily confirm that. The potential for better managing patient flow in settings such as the A&E is enormous.

16. Develop Internet and webcam links with health professionals around the world for 24-hour coverage. For example, when it is the middle of the night in England, a Radiologist in New Zealand, where it is daytime, could easily read a digitised film. Countries could work out reciprocal agreements to cover this service.

With the ability to send very high-quality images, it doesn’t much matter anymore where the medical professional who is interpreting the image is located. This is also true about other diagnostic data such as lab values. Combined with a high quality camera for visual inspection of the patient and other modern sensor technology such as that already in use in intensive care monitoring, the potential for utilising “off shore” medical
expertise to supplement local resources is exciting. There are regulatory and legal issues to work out, but if the NHS can physically send patients to other countries for treatment or physically bring in medical teams from other places, then “virtual transport” (of information and images) should be a logical next step. The notion of reciprocal financial agreements to fund this in a way where very little money actually changes hands (a “bartering system”) is a further attractive feature.

Directions for Further Thinking

As with any creative thinking exercise, there are always more ideas that could be generated. We identify at least the following directions for more creative thinking in a future session:

- There were very few ideas about communicating information to patients during the stay in the A&E or hospital.
- There were few ideas about improving teamwork and communication between health professionals.
- We should think more about the lines of creating temporary beds and space as the need arises.
- We should think more about the use of vertical space in hospitals.
- Several Idea Capture Worksheets contained thoughts that were more general directions for thinking than specific ideas:
  - Need to speed up the process of care in the A&E
  - Need to provide information in a more timely manner
  - Get samples to the lab more quickly
  - Locate available beds in hospital in more reliable and timely manner
  - GP should turn up at patient’s home faster

Each of these, and other topics, could be explored by other groups to generate more creative ideas.

Paul Plsek
Lynne Maher
Mike McBride
Lisa Godfrey-Harris
DRAFT 15th February 2004

Note: Lisa Godfrey-Harris was not able to join us in Rugby for medical reasons, but she contributed substantially to the development and application of the tools we used.
Idea Notebook (Detailed Listing)
Innovative Ideas for Improving Emergency Services in the NHS

Generated by LMP 2 Participant in the Royal Mail Innovation Lab Rugby, January 2004

Innovative Ideas for Prevention and Education

1. Train children in emergency medicine and they will become competent adults
2. Lots of young bravery awards for children spotting and helping with emergency problems
3. Use teenage magazines to highlight ‘emergency’ stories
4. Create family profiles using genetics to help future predictions of possible risks
5. Manage demand for A&E services by identifying likely A&E patients (high-risk groups and individuals) and developing an aggressive prevention plan
6. Local committees all have ‘Health Spectacular’ that emphasises prevention, learning to self assess, how to read your own BP, etc.
7. The NHS has 1 million employees. The population of England is only 60 million. If each NHS employee would talk to 59 other people we could spread messages about health by one-to-one word of mouth and reach the entire population.
8. Get BBC to develop massive health skills training programmes and 'national tests'; complete with health checklists for different patient groups (e.g., elderly) that are published in all national newspapers

Innovative New Health Resources in the Community

9. Drop in health and social care centres; for example, in schools at night, or in existing community centres
10. ‘Well being’ programmes based in GP practices support self management through education
11. Use medical/physio facilitator in football clubs to provide services
12. ‘Personal shopper’ (a cadre of personal health agents) keeps in touch with patients (maybe focus on high-risk, vulnerable groups)
13. Patients who have just recovered become local carer
14. Expert patient or expert person in your street who is trained to ‘Level 1’ can be on call to help or advise on health needs. *(Note: On the Idea Capture Worksheet this was called “Mozambique model”. Is something like this done there?)*

15. Instruct family members/friends to treat the patient.

16. Train milkmen and postmen to recognise signs of poor health and give them a hot line to report on so we can intervene before crises occur.

17. Ask power company to alert us if elderly have low fuel consumption.

18. Street corner service – ‘Health corner shop’ can do basic diagnostics and provides information.

19. Tesco provide 24 hour diagnostic and information service.

20. One stop assessment centres in Supermarkets or Boots.

21. Bank ‘Hole in the wall’ dispenses health information *(NHS could form an innovative partnership with the banking industry to achieve this)*

22. Touchscreen computer embedded in a sliding window for health information.

**Innovative New Health Resources for the Home**

23. More rigorous ‘hospital at home’; bring technologies such as portable x-rays and blood analysers to the home.

24. Interactive digital cameras link to GP and hospital; Web cam links Home/GP/Hospital.

25. Expert patient or carer can enter information and make management decisions via interactive Q&A technology.

26. Home emergency self-assessment kit; every home must have one. Get instructions for use by ringing certain phone number (“If you are bleeding, ring 02121 and we’ll describe how to use the wound dressing in your kit”)

27. Web links providing ‘Step Guide to Care’ diagnostic kit at home.


29. Ceefax or teletext – NHS Direct cable channel – interactive – press red button if you have a temperature.

30. ‘Palm doctor’ especially for monitoring chronic disease at home (e.g., asthma, diabetes).
Innovative Ideas on the Theme of “Mobile” Care Delivery

31. Mobile diagnostic unit in ambulance (IT and voice dictation) forming beginning of health record
32. All monitoring bloods/x-ray done in ambulance
33. Digital photos sent to hospital from ambulance
34. Intelligent ‘jacket’ put on patient to monitor vital signs
35. Paramedics enter information on palm pilots, when arrive at A&E download into system
36. Ambulance crews empowered to take patients to places other than hospital
37. Have paramedics also observe/collection information for social service assessment and relay that information along as well so social services gets involved even before patient arrives in hospital
38. Paramedics on bikes/motorbikes; deployed throughout the community
39. Floating investigation team; staffed jointly by Primary Care and Hospital
40. At risk patients given ‘alarm button’, e.g., a special mobile phone, that they can push to immediately connect to their GP and it immediately sends their vital signs
41. GP dictates history and notes and patient takes recording to next step of journey
42. Minimally invasive camera chip (nanotechnology) injected into the patient’s bloodstream can monitor; give interventions; or relay pictures and signals

Innovative Ideas About A&E Access

43. Put patients on Eurostar train to receive treatment abroad
44. Introduce a fee for being seen inappropriately in A&E
45. No ‘walk in’ in NHS hospitals; contract this to private sector
46. Take over a hotel to provide more beds
47. Work with Social Services to develop a jointly commissioned service with prescription of at-home care with hospital as a back up
48. Hire taxi and minibus service to supplement ambulances in providing transport for walking wounded and non-urgent
49. Put a primary care triage centre in all A&Es
Innovations for Hospitals

50. Bed/trolley that is a bed, trolley, cupboard all-in-one, with all diagnostic needs incorporated; can be operated by Doctor, Nurse, Porter; has electronic data transfer mechanism

51. Change design of bed to more like a chair so that patients and doctors are less likely to think that problem is major and requires admission; only put patient in a bed when needed

52. Design a hammock-like bed that you could hang up wherever you needed an extra bed

53. Think about ways to use stacking systems. *Instead of only conceiving of floor space as laid out on a horizontal plane, think about how we might use the vertical dimension. We might be able to put a patient in a bed that is above another bed. This might be useful in an A&E to handle temporary high-demand situations.*

54. Wards designed to allow patients and families to do some housekeeping to free up nursing time

55. Robodoc / Robodiagnostics – mobile can be used anywhere, home or hospital

56. Accelerate the adoption of available near-patient testing technology

57. Palm pilots for all staff to enter data; wireless links to whole IT system

58. Replace whiteboards that are used throughout the hospital to display information with new type whiteboards that allow you to press a button and print out what is on the board for purposes of documentation

59. Use volunteers as first point of contact and to stay with patient all through A&E process; especially for frail elderly

60. Have animals/pets in waiting areas to soothe patients

61. Attach wireless automatic timer and tracker (*with GPS technology*) to patient as they enter A&E. This transmits to a central system so we always know where patient is and who has been waiting longest.

62. Use GPS technology in hand-held device to direct patients through hospital

63. Create audio guides of illness and/or care process to help patients understand what is happening

64. Video record whole patient journey to raise staff awareness of problems and bottlenecks

65. Moving conveyor system to transport patients
66. Staff use cycles, skates, or motorised scooters to get around hospital

67. Massive IT/SPC system in A&E/hospital; real time data on waits and flow on huge screens so that staff can adjust as needed

Innovative Ideas About Staffing

68. Training for autonomous practitioners who can see ‘whole system’

69. Develop Internet and webcam links with health professionals around the world for 24-hour coverage (for example, in the middle of the night in England a Radiologist in New Zealand, where it is daytime, could easily read a digitised film; countries could work out reciprocal agreements to cover this service)

70. Postpone retirement for doctors