How Logistics Enables the Healthcare Revolution

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Introduction

There is a revolution taking place in healthcare delivery. Patient-centred care is changing the way that professionals think about health and its management, which is reshaping healthcare organisations and their funding structures. The revolution is all about putting patients and their individual needs at the centre of healthcare systems. The potential benefits of this revolution are enormous - but none of them can be delivered without a matching revolution in intelligent, data-rich logistics.

The rise of smart medicine

Today, healthcare delivery is getting smarter. The old patterns of standardized care centred on hospitals and practitioner clinics are being complimented with a new philosophy of care delivered directly to the patient, tailored to individual patient needs. It is a shift that is driven by changes in technology, and changes in the economy too. Medical technology is creating new therapies built not only for specific medical conditions, but also for individual patients. Data technology is creating new ways of generating, monitoring and processing individual patient information, allowing care to be shaped on a day-to-day, even hour-to-hour basis. And economics is driving too: as medical costs increase, patient-centred care has the potential to reduce significantly the costs of healthcare both to governments and to individuals.

Many studies focusing on chronic disease care especially, have shown better patient outcomes from home and community care rather than hospital care. The reasons identified are many and varied, including a reduction in secondary infections and maintenance of a more normal lifestyle. This also frees hospital capacity, allowing for a greater focus on specialist surgery, diagnostic, acute and emergency care.

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The one factor that draws all of these changes together is delivery. Patient-centred medicine may be attractive in principle, but to become attractive in practice there have to be logistics systems in place that are both complex and cost-effective. This implies a change which sees patients being treated in their homes, delivering care in a way that reduces the burden on the supply chain as well as focusing on the individual needs of the end patient.
Delivering healthcare in hospitals or clinics is inherently costly. Hospitals have large fixed costs, and they have to carry extensive inventories of drugs and equipment that are frequently not used to capacity. That is one reason why healthcare providers are being encouraged to reduce the amount of time patients are treated in hospitals, and to shift that treatment into their homes. There may also be a tax advantage: in the UK, drugs that are given to patients at home or in a community setting are zero rated for VAT to encourage the National Health Service to switch to home care where it is medically appropriate to do so, whereas the hospital will have to pick up the 20 percent VAT charge if a drug is administered in hospital.

But delivering high quality healthcare directly to patients means taking many medical skills out the hospital setting and making them available in a wider delivery network, and this is an area of expertise that UPS has developed in the UK by employing pharmacists and patient coordinators who deal with both hospitals and the patients, which in turn has enabled UPS to work with very short order platforms to make sure that needed products are available just in time for dispensation.

Patient-centred medicine also means handling patient data from many sources - including the patients themselves. For example, many of the new generation of cancer treatments are so personalized that they are actually based on the patient’s own cells. These therapies are creating a need to manage terabytes of patient data, ranging from large-scale population genomics to individual data streams derived from wearable devices or smart phone apps that are able to track vital signs in real time and advise the patient or their carer of how to maintain wellness.

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Having access to rich sources of data means that UPS is able to forecast weeks if not months ahead what demand for a particular medicine will be, but this patient data is highly sensitive and it is critical for it to be anonymized when sharing it with anyone other than the patient or their clinicians. Acting as the interface between patient, clinician and manufacturer, UPS has developed techniques to share anonymized data that allow manufacturers to understand the needs of patients in a way that they would not have achieved from medical records coming directly out of hospitals.
From quite simple to very complex

At its simplest, the role of UPS is to deliver products prescribed by hospitals directly to patients, with UPS receiving prescriptions directly. The treatments are sold by UPS to individual hospital trusts at a price already agreed with the manufacturer, and UPS works with manufacturers to enrol patients into the service, while setting up agreements with patients to allow UPS to manage the delivery service and feedback their data on an anonymized basis to the drug company. Long-term delivery schedules are organized with the patient based upon the repeat prescription cycle defined by the patient’s physician.

Even at this simple level there is a large degree of patient communication involved: UPS contacts the patient 48 hours in advance of each delivery, and UPS will send a text message to the patient on the day of the delivery to advise them exactly what time the delivery will arrive. Sometimes coordination with other services might also be needed. For example, some of the biologics that UPS delivers require subcutaneous injection, so UPS arranges for nurses to go out and meet patients when they receive their product for the first and second times of use.

With some patients, especially those on medicines where the dosage can change, UPS will also arrange phlebotomy services, employing phlebotomists directly in certain regions. These specialists are able to go in and take patient blood samples and organize the delivery of those samples directly to the labs for testing, so where necessary the prescribed doses can be amended. At the same time UPS also provides pharmacist-led telephone advice services with specialist knowledge of the therapy area and medicines involved. In certain specialist areas, such as hypercholesterolemia, dietary advice can also be provided by registered dieticians with specialist training in the condition.

This is clearly a level of service that patients appreciate. A recent patient study commissioned by chief pharmacists across one English region in the NHS looking at the services delivered by homecare providers found UPS coming out top in all categories of service provided, with the UPS commitment to patient needs cited as a key reason for the company’s high rating.

The high tech route

At the other end of the spectrum, UPS delivers patient-centred care through direct collaboration with manufacturers. Here the products needed are manufactured to prescription by specialist aseptic compounding manufacturers who make the medicine to the patient’s precise requirements. This is fully personalized medicine and success is all about timing through tailored delivery services that work with both manufacturer and patient.

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This means having trained drivers who are able to go into the patient’s home, checking stocks, checking usage levels and ensuring the product is being used in proper rotation so that patients are not at risk of taking out-of-date product. They will identify, record, and feedback data as well as taking away any out-of-date medicines, sharps bins and low level clinical waste for secure disposal. It is extremely personalized to the individual patient and their household.
Specialized, personalized care depends on extensive systems support. One critical area is temperature-controlled logistics as many personalized therapies are biologic and highly temperature sensitive in nature, needing temperature management throughout the logistics chain. Another is manufacturing assurance, since small-volume medicines are often made at a single site.

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Cold-chain solutions are critical to success, and one of the things that differentiates UPS from other logistics providers. The main challenge around biologics and many short-life medicines is the maintenance of temperature control through the supply chain, especially when there are multiple transport and handling points, whether it is components going into the manufacturer or the finished product coming out.

Planning and maintaining inventory is also extremely important in manufacturing assurance, especially if there are only one or two sites that manufacture a particular product or component of the final product. There are often multiple potential points of failure within our clients’ supply chains, and that means there is also a need for good back-up processes to recover from failure. To mitigate these risks UPS works with manufacturers to assess the whole of the supply chain, to identify where the points of failure might lie, and to ensure sufficient inventory downstream of failure points to guarantee continuity of supply.

Getting to full potential

This need for complex logistics support is another reminder that personalized medicine requires a multi-faceted approach from professionals in many disciplines. It is not just that there are advances in biological and medical science as well as big data analytics to be captured. Greater patient empowerment and engagement is also a key to realizing the promise of patient-centred healthcare. The companies that understand that patients are now beginning to take the most important role of all in modern medicine are the companies that will do most to make patient-centred care the pattern of the future. With UPS, that future is already becoming a reality.