



MK4000 KIOSK: KEY TO IMPROVED HOSPITAL OUTPATIENT EXPERIENCE

AUTOMATED PATIENT ID SYSTEM & INTEGRATED SOLUTION BOOSTS SERVICE



You have finally found somewhere to park, found your way to your out-patient clinic – congratulating yourself for being 10 minutes early – and bang!... you hit what appears to be a kilometer-long queue.

Anyone who has attended a hospital out-patient service might have experienced a similar scenario, but some hospitals, such as Redcliffe Hospital in Queensland, Australia, are now looking at ways to improve the patient experience. Redcliffe's Specialist Outpatient Department (SOPD) offers orthopaedics, surgical, gynaecology, fracture, medical and private practice clinics in a single location to 45,000 patients each year. The department includes public and bulk-billing specialist services, pre-admission and anaesthetic clinics, physiotherapy screening, blood collection, medical imaging and a variety of other services.

With the introduction of Queensland Health's model business rules for outpatients in specialist clinics, the SOPD set out to champion best practice service standards using innovative solutions to improve staff efficiency and aid patient flow.

CUSTOMER PROFILE

Redcliffe Hospital
Specialist Outpatient
Department

Industry Name
Healthcare

Technology Partner
Barcode Dynamics

Product Name

- MK4000 kiosk
- Patient Automated Arrival System (PAAS)

Solution Features

- Barcoded letter for patients to scan
- Self-check in for patients via MK4000 kiosks
- Magnetic swipe for Medicare/DVA validation
- Interactive patient dashboard

Key benefits

- Cost savings in first month of use
- 97% of patients check in via kiosk
- Increase in patient data accuracy
- Over 50% reduction in total consultation time
- Barcoded SMS patient appointment reminders

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Kristy Brown, patient administrations systems manager,
Redcliffe Hospital

THE CHALLENGE

The new business rules set out how hospitals should manage patients from referral, through to consultation and discharge.

An SOPD business process redevelopment project team was set up to drive the change process. The team identified a need for an innovative Information Technology (IT) solution to automate the SOPD’s manual patient processing system, keeping in line with the new rules.

“We needed a solution that would interface with our patient administration system – the Hospital Based Computer Information System (HBCIS),” says Kristy Brown, patient administrations systems manager, Redcliffe Hospital.

“It had to be flexible and configurable with other applications, with unobtrusive, intuitive hardware that could be built on and that we could manage ourselves.” The team called in enterprise and government IT solutions leader Motorola Solutions and integration partner Barcode Dynamics, which specialises in offering automated identification technology with integrated IT solutions.

“We turned to Motorola Solutions and Barcode Dynamics as they had a reputation for innovative technology and the solution they presented met all of our requirements,” says Brown. “The partnership had the ability to see our vision and helped us to see and reach beyond that.”

Prior to the new business rules, SOPD patients sometimes faced a queue of up to 20 to 30 people simply to register their arrival with administration staff. This led to irritated and aggressive patients and stressed staff.

Patients faced a further wait while nurses manually acknowledged their arrival and alerted their consultant. On average, for fracture clinic patients, the total consultation time was three and a half hours, with patients attending the administration counter 13 times as they moved between different service areas.



THE SOLUTION

“The aim was to achieve a more efficient, patient-focused service without compromising clinical and patient requirements. We wanted to automate a patient’s arrival into the SOPD, along with the movement of the patient and their data between service areas and integrate multi-disciplinary clinics,” Brown says.

“The key result we envisaged was a reduction in queue sizes and waiting time for patients on arrival at the administration counter.”

To that end a three-pronged IT solution was decided upon that included:

“The system has surpassed our expectation... patients, therefore staff, are happier.”

Kristy Brown, patient administrations systems manager,
Redcliffe Hospital



- A Barcode Dynamics designed bar-coded patient appointment letter – This letter is produced from the Hospital Based Computer Information System (HBCIS) and sent to the patient who brings it to their SOPD appointment
- Motorola MK4000 Kiosks – The barcode scanning technology has a 12.1 inch touch screen and a high speed processor. Its robust memory architecture enables delivery of a range of information and services via a connection to back-end systems. Patients use the kiosk to scan the barcode on their appointment letter at the SOPD and swipe their Medicare or Department of Veterans’ Affairs (DVA) cards
- The Barcode Dynamics Patient Automated Arrival System (PAAS) – This software allows patients to check themselves in via the kiosk. They no longer have to queue. It interfaces between the HBCIS and a colour-coded, interactive dashboard created by independent software vendor, Health IQ.

“When a patient checks in,” says Matthew Candy, general manager, sales, Barcode Dynamics, “If everything is in order, a dynamic map appears on the kiosk’s screen and shows the patient where to find their clinic’s waiting room.

“Meanwhile, PAAS puts a call through to a secure server that holds the patient’s medical data. Once that data is found administrative staff are informed via the interactive dashboard on their computer screen that the patient is in the waiting area. From here, every move a patient makes is recorded on the dashboard, dispensing with paper-based processes.”

“We had considered the idea of having an interactive dashboard that clinicians could use to monitor a patient’s progress throughout their whole appointment,” adds Brown. “We asked independent software vendor, Health IQ, to develop an interface that allows the dashboard and all other applications to feed back into HBCIS. Now clinicians can see where a patient is and use the dashboard to send patients on to different areas.”

The next stage of the project involved automation of the Medicare and Department of Veterans’ Affairs (DVA) payment systems, via the Motorola kiosk.

To ensure prompt and correct processing of payments the SOPD project team required a magnetic swipe facility to be added to the kiosk to validate Medicare and DVA cards. Barcode Dynamics – with input from Health IQ – modified the interface, kiosk messages and interactive dashboard to validate the cards.

If a patient is paying via Medicare or the DVA, the kiosk tells them to swipe their card. If the card is validated the system tells them what to do next. But if the card is not validated, the patient is directed to the admin counter for formal validation and the dashboard is updated to inform administrative staff there is a funding issue.

THE BENEFITS

The return on SOPD’s investment has surpassed expectations. To date the Motorola MK4000 Kiosk and the PAAS has brought about thousands of dollars in savings, improved patient flow through the clinic and a significant reduction in queues. On average, 97 per cent of patients now check in via the kiosk.

There has been an increase in data accuracy and a reduction in human errors due to the automated arrival process. Admin and clinical staff have fewer manual processes to complete therefore the quality and timeliness of their service has improved.

The PAAS has also reduced the average total consultation time for fracture clinic patients to one hour 43 minutes and patients attend the administration counter on average only twice during their visit.

“The system has surpassed our expectation,” says Brown, “Patients, therefore staff, are happier.”

The introduction of the electronic automated process for verifying Medicare and DVA eligibility offered increased revenue potential in the first month of the system going live, with \$22,000 of cost savings. This is

CASE STUDY

MK4000 Kiosk

due to ineligible patients not being identified by the old system, and therefore not paying. Now these patients are being captured by the kiosk and directed to the administration counter for payment.

Predictions are that patient non-attendance will fall even more once the hospital introduces SMS appointment reminders. The text will carry a barcode, and patients will scan the barcode at the kiosk at their follow-up appointment.

Brown says: "Another major lesson learned was that we underestimated how much the changes would reduce the manual workload. Staff now deal with fewer complaints from patients and are available to assist in areas that might require extra staff."

The solution has now been rolled out to Redcliffe's Hospital's antenatal department and to the State's Caboolture and Mackay Hospitals. And the icing on the cake? Chosen from a wealth of recently implemented national solutions, PAAS was awarded the Don Walker 2011 Award for Efficiency at the Health Informatics Society of Australia annual conference.

MK4000 KIOSK

- **Browser** Internet Explorer CE version 6.0 compliant
- **CPU** Intel XScale™ 624 MHz processor
- **Communications** WLAN: 802.11a – up to 54 Mbps, 802.11b – up to 11 Mbps, 802.11g – up to 54 Mbps
- **Flash Memory** 64MB; addition memory up to 8GB Flash using accessible Micro SD slot
- **RAM** 128MB SDRAM
- **Audio ports** Two integrated stereo speakers; microphone
- **Data ports** 3 Mini USB – 1.1 (2.0 Compliant) Client/Host; Ethernet RJ-45
- **Dimensions** 11.83in. H x 12.43 in. W x 2.43 in. D / 30 cm H x 31.57 cm W x 6.17 cm D
- **Display size** DC power: 24v
- **Programmable buttons** Touchscreen, 800 x 600 pixels (SVGA)
- **Resolution** Weight – .4.4 lbs / 1.99 kg

About Barcode Dynamics

Barcode Dynamics Pty Ltd services the automated identification market Australia-wide. The group's activities incorporate label manufacturing, thermal printing, data capture and mobility solutions, application integration, software development and professional services. The company operates in several vertical markets including manufacturing, retail, government, logistics and warehousing.

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