The report, ‘Healing the crisis: a prescription for public health action in South Eastern Europe’, outlines the need for increased attention to the region’s failing health infrastructure. Prospects for rebuilding a functioning public health care system have never been better, as for the first time in history, the countries of South Eastern Europe all enjoy democratically-elected governments that are open to reform and keen to join the European Union, the report points out. The international community has invested billions of dollars to bring peace, and help reconstruct the region and build public institutions. ‘Too much effort has gone into rebuilding South Eastern Europe to allow the public health system to fall through the cracks,’ said Open Society Institute Chairman George Soros. ‘With a minimum amount of funding, the state of health in the region can be turned around.’

South Eastern Europe - including Albania, Bosnia and Herzegovina, Bulgaria, Croatia, Macedonia, Moldova, Romania, Serbia and Montenegro, and the UN-administered province of Kosovo - is emerging from a painful decade of transition, the report points out. The collapse of communism, wars, instability and organised crime have exacted a huge toll. Poverty is widespread, drug use is on the rise, and fighting and drug use are stark. People in Moldova, for example, can expect to die ten years earlier than their counterparts in the EU while in Romania, the death rate is six times higher than in the EU.

The health sector in South Eastern Europe is too often ignored,’ said Professor Martin McKee of the London School of Hygiene and Tropical Medicine, one of the report’s authors. ‘Yet the region must not be forgotten. Without a healthy population, the region cannot move forward. Improving public health will help ensure that it becomes a vital contributor to Europe.’

The report calls for increased support to overcome health challenges at the national, district and local levels, and emphasises the need for a more comprehensive public health model that incorporates a preventive approach.

The establishment of country-level public health plans, headed by central governments and developed by multidisciplinary teams, which include civil society organisations, are recommended in the report, which also gives recommendations on how to:

- re-orient training for health professionals
- implement reliable surveillance and health information systems
- target health promotion efforts to engage and empower the public
- improve health care delivery systems so that the entire population has access to basic health services
- develop mechanisms for sharing best practices.

Full report: www.lshtm.ac.uk/ecn/host/see/index.htm

South Eastern Europe is facing an imminent public health crisis that can be averted only by urgent intervention, according to a new report published by the Open Society Institute, the London School of Hygiene and Tropical Medicine, the United Kingdom Department for International Development, and UNICEF.

Europe SE
Urgent warning
‘Stability hinges on better public health’

Report by Anja Behringer

The annual 15 million euros cost for pain therapy in Austria has increased disproportionately (> 500 %) since transdermal patches were introduced. This phenomenon prompted British scientists to compare transdermal and oral palliative pain therapy costs. Gathering data from 999 tumour patients (drawn from the national register), costs were analysed for different pain therapies from their beginning to the patients’ deaths. All costs, including in- and out-patient care, and the costs related to palliative care, were considered. The opioids evaluated are a 12-hour retard morphine (in Austria: Mundipharma retard) and transdermal fentanyl (Duragesic) with 2-3 days delivery. The patients were categorized in four groups and there were no statistically significant differences in ages and tumour profiles.

The results - presented at the recent World Pain Congress in San Diego - are surprising. The average monthly costs of transdermal applications were £2,067 - considerably higher than the £528 for orally administered retarding morphine-therapy. Apart from higher costs for hospital care, the difference lay mainly in the price of transdermal fentanyl. In addition, transdermal therapy often requires additional medication, such as locaters and anti-emetics, which, along with stomach and NSAID-medication, are prescribed far less often during oral regimes - despite claims to the contrary, constipation occurs much more often in patch therapies. The patients receiving oral treatment visited their physicians just 1.44 times a month, while the transdermal patients made 2.41 visits monthly. A further cost factor is the use of a specialised nurse: 0.52 visits in the oral group compared with 1.01 visits in the transdermal group.

According to the British study, patients in advanced tumour stages are not treated adequately. Even not a third of these received 4-hour morphine-paracetamol, although this is recommended in the national therapy guidelines. But better cost-efficiency is not the only advantage of oral pain therapies: their effect is much quicker and they are more easily controlled, because they don’t require complex dose titration procedures. Transdermal systems, can take hours to show any effect and the maximum effect occurs after 24 hours.

Opioid patches enjoy a ‘healing image’ and patients consider them harmless - therefore, many physicians prescribe them on demand. But there is a dangerous lack of information on the risks of the patches: a transdermal system with fentanyl contains a reservoir that is up to 100 times stronger than morphine. 

Pain: skin patches accelerate costs
Bio-engineering

Warning - plus and biggest pharma settlement ever

USA - A federal inquiry into illegal sales and marketing of Zoladex, a prostate cancer treatment, led to AstraZeneca agreeing to pay $354.9 million and entering a five-year Corporate Integrity Agreement (CIA) in settlement. This was reported as the second biggest settlement in pharmaceutical history.

The firm pleaded guilty, in a federal district court, to violating the Prescription Drug Marketing Act’s provisions forbidding the sale of drug samples and related promotion of off-label uses. The Justice Department listed in its findings that AstraZeneca employees had given doctors thousands of free Zoladex samples, knowing they would prescribe them and bill Medicare and Medicaid for their use.

- offered free samples, unrestricted educational grants, business assistance, travel, entertainment, consulting services and honoraria to doctors in exchange for their prescriptions of the drug.
- offered doctors big discounts on Zoladex, but not reflected those discounts in the average wholesale price reported to Medicare and Medicaid, thus inflating prices and increasing physicians’ reimbursements.
- misreported and underpaid Medicare rebates for Zoladex to the States under the Medicare Rebate Programme.

Botox - Allergan, the California-based pharmaceutical firm that produces Botox, received a stern warning for underpaying risk in this treatment. In a letter from the US Food and Drug Administration (FDA) the firm was ordered to change wording in advertisements, because they ‘... falsely identify your product as a cosmetic treatment, fail to reveal material facts about the product’s use and minimise the risk information.’ One of the main complaints from the FDA was that the advertisements made claims beyond the approved use of this treatment.

In clinical trials 44% of Botox recipients showed side effects. These included nausea, temporary eyelid droop or respiratory infection.

Unfair drug promotions

NHS buys private heart hospital

The London Heart Hospital has been bought by the UK’s National Health Service for £27.5 million. The Heart Hospital is on the site of the former NHS National Heart Hospital, which closed in 1991 when services were moved to a new wing at the Brompton Hospital. It comes fully equipped and staffed by its private owners Gleneagles Hospital UK. The Heart Hospital has 162 beds and 45 operating theatres. It was awarded a grant of almost $5 million, by the National Institutes of Health (NIH) for research aimed at developing tissue-engineered solutions for heart disease - which include a tissue-engineering surgical procedure and tissue-engineered blood vessels to be used surgically after cardiac or other cardiovascular events.

In the projects, stem cells from muscles or bone marrow are held within a flexible, permeable, non-toxic polymer that is biodegradable at a stable rate. This is to be used as a temporary ‘scab’ while, new, healthy own-body tissue develops in situ. ‘We are working on ways to grow tissues that will not just be similar to our own, in terms of make-up, but which will also be mechanically strong and functional. To do this, we will need to train the tissue as it develops for the role that it will ultimately assume,’ explained the project’s principal investigator William Wagner PhD, Associate Professor of Surgery and Bioengineering at the university and Associate Professor of chemical and petroleum engineering at the university’s School of Engineering.

The tissue development, involving the university’s tissue engineering centres in cardiology, chemistry and imaging departments, is aimed at replacing blocked arteries and helping the body to regenerate its own damaged cardiac areas, increasing cardio-muscular strength, Dr Wagner pointed out. ‘The patches’ aims to help regenerate cardiac muscle and will be ‘trained’ for rhythmic contractions. David Yorp PhD, Associate Professor in the university’s surgery and bioengineering departments, is developing the tissue-engineered blood vessels, which are undergoing mechanical stresses to train them to function like natural vessels.

At a molecular level, biological markers of stem cells will be measured to establish differentiation into appropriate cell lines, including cardiomycocytes, smooth muscle cells, endothelial cells, chondrocytes, receptors, tagged to cell components, will enable study (via imaging) of stem cell development within a patient. This research could also have an impact on other tissue disorders, such as those affecting the bladder and urethra.

Royal longevity secret?

Aberdeen, Scotland - A small study by GPs found spring water, drawn near the Queen’s Balmoral estate, decreased rheumatoid arthritis pain in 2 in 3 patients. It has low mineral content, near-neutral pH and anti-oxidant properties.

NHS buys private heart hospital

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NHS charge card introduced

UK - NHS wards have an 'environment' budget of £5,000 minimum to be spent on what the staff considers would improve patient care and staff conditions. Now they can actually spend that sum by using special visa backed charge cards. The budget can be spent on whatever ward sisters or charge nurses consider will best enhance and humanise patient care, or the working lives of staff. This includes improvements and repairs to the ward itself, medical and non-medical equipment, and consumables. The one restriction is the budgets cannot be spent on staff pay costs or other staff-related costs such as training. The ward sister or charge nurse will have responsibility for spending the ward environment budget using the Purchasing Card. This will require good nurse leadership and involving the ward team in decisions about how to improve the ward environment- to focus on the 'human' aspects of care. Nurses participating in the pilot programme so far, items bought have included furniture, bookcases, uniforms for ward clerks, educational activities for children, child safety gates, mirrors, and even gardening tools for patients in a learning disability unit. All these purchases were quickly completed, without the impedance of the usual red-tape and forms filling involved in other hospital expenditures, increasing enthusiasm for the system. The NHS Purchasing Card is acceptable at any VISA outlet. Additional features, specific to the Purchasing Card, include transaction limits, merchant category blocking, management information and statements, VAT reporting, corporate liability waiver and co-branding. The NHS, which is currently developing a co-branded card, emphasises that these are not credit cards, and payment is settled in a lump sum.

PCTs should not withhold a budget on the basis of a ward's age or condition. Therefore, wards due for imminent closure, new wards and wards in a PFI hospital are all entitled to a budget. Where there is doubt, hospital managers will decide how a ward is defined within their hospital with a view to delivering the spirit of this initiative, and Regional Office approval must be obtained for any exceptions, the NHS adds.

Hazel Blears, the government’s Health Minister, said: ‘With more power going to the frontline, patients are starting to enjoy cleaner, better-equipped wards and improved standards of care. Nurses know what their wards need, they know what will help improve the care and recovery of patients. By giving them the financial control they need we can ensure that patients get a better service in the NHS.’

Sarah Mullally, Chief nursing officer added that the new purchasing cards ‘...demonstrate the Government’s commitment to empowering nurses and improving the fundamental care of patients as we set out in The NHS Plan.’

Responsibilities - There is a simple and complete audit trail - kept by Finance departments - and cardholders must keep accurate records as part of that audit trail. The cardholder must ensure quality of purchases, and keep up communications to maintain controls. Management spot checks will take place for financial control and to prevent fraud. A log of all transactions must be kept, and goods must be checked on arrival for acceptability.

Progress is also being made in the NHS to introduce ward housekeepers, who will work with ward sisters to ensure wards are clean and that food is enjoyable.

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Hospital reconstruction
CONTRACTS OFFER NEW FINANCING CONCEPT

Complete modernisation and building management will commence at the Sana-Clinic, Remscheid, following an agreement between Siemens Building Technologies/Landsis & Staefa GmbH and Gegenbauer Krankenhaus Service GmbH. The firms say this is the first time that a new structure will also be equipped with building services systems. The partners will invest some 26.4 million euros in the project - which will last some 15 years.

Service providers frequently pre-finance the modernisation of building services systems and ‘refinance’ this investment through energy/operating cost savings achieved. However, the partners report that their approach is new, in that they have considered the design planning of building services systems for structures that are yet to be built from the aspect of operating costs over the entire life cycle of equipment.

In this way they could define economical alternatives, select a more advantageous architectural design, in terms of energy use and business economics, and develop a model on that basis. Thus, they add, allows for higher investments that are refinanced from lower operating costs.

Sana-Klinikum Remscheid sees this financing method as a way of cutting costs. Over the next two years, the clinic will convert its university hospital facility (745 beds, 41,000 patients per annum), which is currently located at two sites, into a modern, economically oriented clinical facility at a single location with the support of the two partners. To achieve this, a large number of buildings will be demolished, converted or extended, and a large part of the building services systems will be modernised, renovated or replaced.

For the hospital’s operators, the ratio- nale behind financing building services equipment via contracting was the fact that ultimately the sum of the investment, energy and media costs, plus operational management is decisive, they point out. “Only optimisation of all three cost types will enable long-term profitability. Although expenditure for the initial investment would have been lower with the original general contractor concept, the day-to-day running and operator costs would have been significantly higher.”

The contract with the consortium refers to defined basic requirements for room conditions and plant availability, to basic investments, operating costs and energy/media consumption. The contract term is 15 years. Legally, this contract is based on the contract procedures for building works, and follows the principles of energy-saving contracting agreements. The contract includes two major guaranty obligations:

- Compliance with a maximum investment limit based on design planning
- Compliance with annual energy and operating cost requirements with respect to design planning

The consortium will initially invest 26.4 million Euros in new installation, modernisation, renovation and in creating a framework for professional building operations. Sana will repay those costs to the consortium via contractually agreed annual contracting rates.

This model, which is being implemented for the first time with Sana-Klinikum Remscheid, constitutes a combination of contracting for systems, energy-saving i.e. performance, and technical building management.

The Sana Medical Association, founded in 1976 by 18 German private health insurance groups, comprises 23 hospitals, 66 outpatient clinics, 21 hospitals and two geriatric care centres, and manages 40 other hospitals and 18 geriatric care centres.

The first contract between Sana and a municipal hospital was signed with the city of Stuttgart in 1991. The “Stuttgart Model” set in motion a process of modernisation of public buildings. Including the gigantic care centres (partially with in-house management), Sana has commitments in 53 facilities with some 13,000 beds. The association’s 23,530 employees generated sales of 1,697 million Euros in 2002.

Source: Sana-Klinikum Remscheid

The Martin Luther University Hospital Halle-Wittenberg

The success of a modern hospital hinges on medical expertise combined with hygiene, functionality, cost-efficiency and, last but not least, patient satisfaction. In response to these necessities, the Martin Luther University Hospital, in Halle-Wittenberg, Germany, decided to expand and redesign its facilities. Today, futuristic facades of metal and steel reflect innovative treatments and state-of-the-art equipment.

Patients’ rooms have an equally advanced style. The use of wood and warm colours create a pleasant, almost home-like atmosphere. The generous use of glass in facades, roofing, and to some extent interiors, also provides a sense of openness. “Everything has become so much brighter and friendlier, which is extremely important for the well-being of patients and staff alike,” said Marion Conrad, head nurse at the Surgical Centre.

20 operating theatres, intensive care departments, plus day units and out-patient clinics form the ideal basis for highly specialised examinations and treatments, and individual wards have been customised for specific needs.

Grohe, the water technology specialist, supplied the faucets used by patients and medical teams. These include wall-mounted Grohetherm Ergoform thermostat mixers in the Blood Transfusion Department. Their ergonomically shaped scale handles for temperature adjustment are mounted on the front, for easy operation. The longer operating levers (170 mm) can easily be used with the elbow, thus ensuring better hygiene. An integrated thermostat also guarantees constant temperature to avoid scalding due to pressure fluctuations or cold water failure.

Barrier-free bathrooms - The Euroeco safety mixer in patients’ rooms, also provides washbasin taps with a 170mm, ergonomically shaped lever. These are not only safe, but an economic choice: if the lever is turned to the extreme left, the faucets are closed, if turned to the right, cold water flows in a pre-set quantity. The further the lever is turned right, the warmer the water becomes. A maximum temperature can be preset using the mechanical hot-water stop. Additionally, the maximum water quantity is pre-set for nine litres per minute but can be reduced as required.

“We had used Grohe products since 1990 and were so satisfied that naturally we chose this renowned sanitary faucets specialist again. Their fittings are characterised by durability and convenient operation,” said Steffen Otto, a member of the Construction Co-ordination Committee, also responsible for modernisation of the hospital.

Barrier-free bathrooms - Hospital patients often have to deal with restricted movement of their mobility. To make everyday hospital life easier for them, the hospital features barrier-free sanitary facilities. The long, ergonomically shaped safety mixers of the “Ecotherm Special” safety mixer are particularly easy to use.

All others are just OR-Tables.
The advantages of electronic procurement are obvious: increased productivity, less likelihood of errors, and data can be integrated into an existing ‘enterprise resource planning’ (ERP) system without changing to a different central system. In the medical sector, this concept has proved efficient due to a fast connection, the new extensive range of offers and easy 24/7 accessibility.

Ulm’s university clinical centre (www.uni-ulm.de/klinik) wanted more than ‘click-to-buy’ ordering for its in-house e-procurement system. The clinic was addressing future needs, such as far-reaching integration of equipment, labour organisation, and meeting the new DRG law in 2004.

Years of experience have shown that successful electronic purchasing is dependent on the far-reaching integration of an e-procurement system into an existing system. Ordering data can be fed directly from the ERP-system and completed orders directly forwarded to finance and materials management, which enables competent data evaluation – guiding future purchasing decisions.

In-house, an e-procurement system flows, like bar code scanner systems in shops, and can be used as a three-shift system. This scenario can therefore be eliminated: a member of staff on a morning shift notes that an item is out of stock and orders it. During the next shift another staff member also sees the item is out of stock and orders it! However, when using an e-procurement system a warning is issued to the user, showing the ordering time, amount ordered, and expected arrival date of the item.

**The DRG law** – Anyone considering an e-procurement system should ensure that it supports group-related account assignment. Many systems can relate prostheses, implants, etc. to certain cost centres, but not to the various patients. An early changeover in purchasing can make the applied realisation of the case-based lump sum system far easier.

**Pricing** – A further advantage of e-procurement is that prices negotiated by the client (hospital) yesterday can be valid for all orders the next day. In addition, the user is free to choose specific and essential component suppliers and producers.

When choosing the in-house system, Hans Hoot, head of material management at Ulm University Clinic said: ‘We selected a provider whose portfolio includes about 400 suppliers and who could integrate our regional suppliers into the system.’

At the end of 2001, to restructure and speed up ordering (and save time/money), the clinical centre was the first software solution (SAP) client in the medical sector to order the SAP e-procurement system from Walldorf, Germany. Today, around 150 staff members at the centre order listed goods directly from their workplace. In-house logistics guarantee a fast delivery to specific cost centres. In the centre’s intranet, orders are relayed to suppliers via E-PROCUREMENT

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Hospital buyers must juggle shrinking budgets to offset rising costs, understand and follow strict national guidelines, issue tenders across the EU, as well as keep abreast of new products, new technologies, new supplier structures and company mergers. How do they perceive their changing roles? Our Austrian Correspondent Christian Prusinkzy reports.

The need for economic rationalisation in European clinical institutions has resulted in re-organisation of purchasing processes and logistics. Continual developments in international markets and international company mergers and new ordering and distribution methods (e.g. the internet) have also brought new challenges for hospital purchasing departments. Today, buyers can no longer just buy supplier offerings from one legal entity. Legal guidelines and other requirements - such as those obliging buyers to purchase from Pan-European tenders for orders over €200,000 - have also limited their freedom. Buyers at the Vienna Hospital Association (KAV) are responsible for a medical infrastructure involving some 400,000 patients with five million hospital in-patient days (including care and old people’s homes). This association has created a new, flexible structure for purchasing. Called the ‘Purchasing Forum’, this is based on voluntary co-operation between several hospitals and covers everything from food and laundry to transportation and technology - including IT.

European tenders are agreed by representatives from the associated hospitals, all of which also carry out product testing and usage analysis. Drug purchasing - with costs exceeding €10 million - is carried out via a committee, chaired by heads of the large hospital pharmacies within the association, who annually negotiate terms and conditions with pharmaceutical companies.

Additionally, each individual hospital in the KAV has a specific budget for single tenders, plus medical equipment and other specific supplies. For this, the Purchasing Forum offers administrative help in the form of a central catalogue of master data, based on SAP, as well as interfaces to provide a fully-automated purchasing system - including invoicing and payments.

Norbert Wall, Head of the Purchasing Forum, and engineer Josef Kastl, Head of the higher Service Department point out that this structure was developed on the European trend for public service organisations to maintain a high level of entrepreneurial freedom. Over half of Austria’s hospitals are in the public sector.

Purchasing EU tenders

Despite varying rates of value added tax (VAT) in different European countries - ranging from 0-25% in Scandinavian countries (fig. 1) - buyers are increasingly purchasing manufacturers’ prices for drugs, adjusted in terms of purchasing power (fig. 2), and despite new suppliers who have mastered competition rules perfectly, the effects of European tenders for large purchases are limited, although the trend in purchasing is definitely towards large orders and tenders. Buyer Josef Kastl of the Vienna Hospital Association and business school graduate Gerhard Jirovsky, Head of Sempermed (one of the world’s largest makers of medical gloves), say that due to language barriers and logistical problems (e.g. transportation of goods from Portugal to Norway or from Sweden to Greece it can involve the difficulty of crossing national borders), suppliers often only respond to tenders put out in the neighbouring European countries rather than those further afield. Pan-European re-imports or shopping tours are not something that Gerhard Jirovsky has seen in his market sector. He also views attempts to process large orders through more or less anonymous internet platforms (with no transparency and no guarantee of adherence to product norms) as dangerous and is calling for more regulation of those purchasing.

The conditions under which tenders are awarded have become increasingly tough, he points out, adding that they are sometimes almost unacceptable. One example is business volumes. In extreme cases, the rules here can lead to a situation in which a manufacturer must factor a potential order for 10 million units into its system whereas the customer buys only one to fulfil contractual obligations. Price guarantee is another problem - tenders often stipulate that prices quoted must be guaranteed for about two to four years or more, which ignores market shifts and forces. An order bound by contractual fixed prices when market prices are rising customers can simply raise new tenders if market prices are falling, thus reducing their costs. In reality, says Gerhard Jirovsky, these tough rules are made more acceptable by the common sense and fairness of many buyers, who may offer clauses in their terms and conditions to end contracts early, or who simply may be keen on good business relationships that should outlast market fluctuations.

Suppliers and sales reps - the future: The increase in gigantic company mergers across all business sectors, and the increasing purchasing powers created by customers pooling resources, create a big challenge for specialist medical suppliers. The development of group purchasing organisations seen in the USA, which reduces distribution to a mere logistical function, is not yet detectable in Europe, where other structural conditions exist.

However, Gerhard Jirovsky says the annual distribution of 6.5 billion Sempermed gloves is almost exclusively managed through wholesale operations and the firm’s business partners, which means that local and local specialist suppliers miss out. Wolfgang Gross MA, Managing Director of the Association of Austrian Medical Device Manufacturers (AUSTROMED) does not think there is much danger. The classic functions of specialist suppliers (e.g. offering a large and varied product range, information, advice/training, logistic chains directly to hospital wards, 24-hour servicing, after-sales service etc.) will always be needed by hospitals, because the patient is the main focus, not the red pen. The users - doctors, nurses, technical staff - will always want the highest level of flexibility and specialist advice and training, he points out. So the future purchasing relationships that should outlast market fluctuations.

Co-operation brings further savings

The 2002 survey ‘European Physicians and the Internet’, by Boston Consulting Group (www.bcgp.com), confirmed that over 50% of physicians are interested in cost savings and administration optimisation via IT-systems. The majority said they would invest in e-procurement if savings were to be higher than 10% compared with traditional ordering processes. ‘That percentage is more than realistic,’ says Hans Hoot. ‘Due to the reduction of both cycle time and the number of wrong orders we expect enormous savings.’ Of course, if a traditional ordering process has already been fully optimised, then e-procurement savings will be low. For comparison: the German automobile supplier Continental Teyes AG had a Purchase Card system before integrating a new e-procurement system, so savings in operating costs were minimal. Nevertheless, further savings were achieved, which had a direct effect on sales.

The SAP and Wallmeden combination at the Ulm clinical centre also presents the possibility of private exchanges. Januar Suppert, Swiss consultant for procurement management (www.ruppertpartner.com), points out that purchasing co-operation between enterprises and institutions leads to savings of up to 15%. If you have potential with electronic procurement, the 10% wanted by physicians is easy to attain. ‘The university clinical centre has already concluded a Ciupertino contract with the SANA Kliniken GmbH, Hans Hoot says. ‘The Ciupertino will include all product groups.’
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NEW

TruST 12-lead for Infinity Telemetry

Vienna, August - Dräger Medical, a Dräger/Siemens company, will introduce TruST 12-lead ECG monitoring for its Infinity Telemetry System at the ESC. Infinity Telemetry with TruST (part of the Infinity Patient Monitoring System) further substantiates Dräger Medical's new approach to monitor design, patient transport, bedside ergonomics and workflow, as well as data management,’ the firm reports, adding that the system is now available in Europe, Asia Pacific, Latin America, and the US.

Unlike conventional 12-lead ECG monitoring, which needs 10 electrodes, this new system uses only 6 electrodes to process 12 leads, and has a standard electrode configuration to ensure accurate and efficient placement. ‘What differentiates TruST from other reduced electrode set 12-lead algorithms is its ability to measure 8 “true” leads and interpolate only 4. By including 8 true leads in a reduced electrode set 12-lead, TruST protects against lead-off conditions, increases accuracy in arrhythmia processing, and decreases chances of artifact permeating all leads. As a result, TruST provides increased reliability in continuous 12-lead monitoring and ST segment analysis,’ Dräger points out.

‘To maximise equipment investments, Infinity Telemetry with TruST supports varying patient acuity levels by using a single monitor for 1-, 7-, 8- and TruST 12-lead ECG monitoring and offering an adjunct motion tolerant, continuous SpO2 monitor. And, the firm adds, the system offers one of the lightest transmitters available, thus enhancing patients’ comfort and mobility.

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Echocardiography has made significant contributions to the non-invasive evaluation of cardiac disease for many years. Every so often technical innovations arrive to add to its clinical value and standard of care procedures. Live 3D imaging is potentially one of these, for this displays a 3D cardiac image in real time, completely integrated into a fully functional ultrasound system.

Three new technologies have been developed to overcome the hurdles in 3D imaging.

In 1994, Toshiba Medical Systems was the first imaging company that introduced Tissue Doppler imaging method on a commercially available digital platform called PowerVision. Other vendors followed introducing TDI applications on their systems and Tissue Doppler. Recently the firm introduced a new digital platform ultrasound system called Aplio. This highly sophisticated hardware has an open structure and allows high quality and high Frame-Rate data acquisition the firm reports. This has great impact on the handling and analysis of ultrasound data in Routine, Contrast, Stress Echo and other applications especially TDI.

To make the analysis of TDI data routinely applicable, Toshiba introduces the TDI-Q commercially available package on the Aplio platform.

TDI-Q provides sophisticated analysis tools integrated in the Aplio system and based on high quality signals in Raw Data format. The high Frame Rate acquisition will allow essential time related analysis measurements, important for patients with a-synchronous contraction or Bi-Ventricular Pacing.

**Live 3D Echo**

Real-time benefits for cardiologists

Echocardiography has made significant contributions to the non-invasive evaluation of cardiac disease for many years. Every so often technical innovations arrive to add to its clinical value and standard of care procedures. Live 3D imaging is potentially one of these, for this displays a 3D cardiac image in real time, completely integrated into a fully functional ultrasound system.

Three new technologies have been developed to overcome the hurdles in 3D imaging.

In 1994, Toshiba Medical Systems was the first imaging company that introduced Tissue Doppler imaging method on a commercially available digital platform called PowerVision. Other vendors followed introducing TDI applications on their systems and Tissue Doppler. Recently the firm introduced a new digital platform ultrasound system called Aplio. This highly sophisticated hardware has an open structure and allows high quality and high Frame-Rate data acquisition the firm reports. This has great impact on the handling and analysis of ultrasound data in Routine, Contrast, Stress Echo and other applications especially TDI.

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recalculate the original velocities towards a user definable reference point, and makes the interpretation of the data more easy in clinical practice in patients with ischaemic heart diseases and cardiomyopathy.

Fig. 2: A screen display of a normal LV with a good function of the Myocardium. As a result of Angle Correction, red to yellow colours indicate the deformation/Strain, in the short axis View.

Fig. 3: An image from a patient with an inferior infarction and dyskinetic IVS. The dark red colours indicate a very low deformation/contraction of the inferior wall. The extracted curves show delayed contraction of the ischaemic areas and post-systolic thickening in the IVS.

Based on real tissue tracking methods, advanced analysis tools can be used to display and quantify myocardial function. An easy to use ROI tracking system will not only speed up the analysis, but will also improve results accuracy! An exporting tool allows the data to be converted in ASCI files that can be read by commercially available spreadsheet and statistical calculation programmes.

Fig. 4: Demonstrates the displacement of the myocardium during contraction. Time Displacement Curves allow specific assessment of local structures, in this case the basal region of the posterior wall, and IVS, simultaneously during the cardiac cycle.

The TDI-Q Package allows the implementation of TDI analysis not only for Research purposes but also for clinical use.
When you are conducting complex diagnosis and research in echocardiography, you want high-performance tools. Aplio CV’s intelligent component architecture allows the incorporation of innovative technology. So it offers superb diagnostic performance as well as great potential for new and advanced cardiac applications. Whether you are concerned with workflow management, quantification and analysis or communication and data transfer capabilities. Aplio CV has it all.

The system’s architecture has been designed to meet the real-life needs of researchers and high-end users. Easy navigation for streamlined workflow. Advanced imaging modes for outstanding visualization. Raw data output for precise research and quantification. And a wide range of communication options for full integration into the clinical environment. That’s why Aplio CV is intelligence in ultrasound.

Siemens: ‘Continuous efforts to identify coronary narrowing and to evaluate coronary circulation in patients without coronary narrowing are a critical mission for us’

to evaluate coronary flow dynamics noninvasively, using transthoracic Doppler echocardiography. The success rate of CFVR measurement is > 90%, which is feasible for daily clinical use. Thus coronary flow can be checked not only in a cath lab, but also in the echo lab - or even at a patient’s bedside.

Measuring CFVR using TTE involves three steps and CFVR is calculated as a ratio of hyperaemic to basal coronary flow velocity:

1: Visualisation of coronary flow by colour flow mapping

Echocardiographic images can be obtained from the acoustic window around the apex - usually on midclavicular line in the fourth and fifth intercostal spaces in the left lateral decubitus position. After the lower portion of the interventricular sulcus is located in the long-axis cross-section, the transducer should be rotated clockwise to search flow signals on the left anterior descending artery (LAD) under the guidance of colour flow mapping. The characteristic of coronary blood flow signals is linear signals that persist during entire diastole (Fig. 1).

2: Coronary flow velocity recordings

Coronary blood flow velocity can be recorded by pulsed-wave Doppler (3.5 MHz) using a sample volume (1.5 to 2.0 mm) placed on the colour signal in the mid to distal LAD. Adenosine is administered by intravenous infusion (0.14 mg/kg per minute) for 2 minutes to record spectral Doppler signals during hyperaemia. Electrocardiogram, heart rates and blood pressure should be monitored continuously.

Coronary flow velocity reserve (CFVR) has been accepted as one of the most reliable indices in detecting functional coronary stenosis. It is also accepted as an index for evaluating coronary circulation in patients without coronary narrowing. This index has been measured - invasively - by a Doppler guide wire or Doppler catheter or - expensively - by positron emission tomography. And although these techniques successfully introduced the value of the index in CAD or coronary risk in vivo assessment, in patients with known CAD their use is limited.

Recently, technological advances in echocardiography have enabled us...
Imagine what you could do with the new Philips SONOS 7500 system with Live 3D Echo, the one system that allows you to see inside a beating human heart in real time, instantaneously as you scan. It’s a breakthrough that could help revolutionize the day-to-day possibilities of echo, from expediting diagnosis and analysis to creating new solutions to even your most complicated cases. All because it was designed to help people like you. To learn more visit www.medical.philips.com/sonos7500

**She sees more than Live 3D. She sees a fundamental change in the practice of echo.**

**Tips for Coronary Visualisation**

First, recognition of the anatomy is needed. A cross-section of coronary imaging cannot be obtained in standard two-dimensional images. Because the LAD exists in anterior interventricular sulcus, the landmarks for coronary imaging are the left ventricular wall, right ventricular wall, and interventricular septum.

Next, specific machine settings for coronary flow are critical. The most important setting is modification of velocity range in colour flow mapping. When using velocity range for routine colour flow mapping (approx. 60 cm/s), it is difficult to visualise coronary flow, which is diminished by wall filtering in most cases. Thus, velocity range should be set around 20 cm/s to visualise coronary flow.

A final important point is the use of the appropriate transducer for coronary flow visualisation. We recommend using a high-frequency (5 MHz) transducer because the distal LAD is in the near field for most patients. However, selection of the transducer must be made in specific cases. When the distal LAD exists in the far field, a lower frequency transducer may be better.

When flow visualisation or velocity recordings are not sufficient for analysis, a contrast agent is useful as a Doppler enhancer. Although the number of the patients who need a contrast agent differs between study populations, the proper use of a contrast agent increases the success rate of flow velocity recordings (Figure 3).

**Conclusion**

- Coronary flow assessment by TTDE, which is completely non-invasive, opens a new window for physiological assessment of coronary circulation.

Japanese ultrasound meets EU rules

Producing diagnostic ultrasound equipment for general imaging, abdominal and vascular applications and solutions specifically for cardiac and cardiovascular diagnosis in neonates, children and adults, equipment from the Japanese firm Aloka is used throughout healthcare facilities - from practitioners’ offices to university and research institutes - worldwide. In Europe, to meet requirements that can differ from other regions and to more directly serve customers’ needs, the firm established the Aloka-Europe group, plus an R&D group.

Among the company’s cardiology and cardiovascular products are the Aloka ProSound premium digital ultrasound systems, SSD-4000, SSD-5000 and SSD-5500, with an extensive range of sector and TEE probes for cardiology, as well as convex and linear transducers for cardiovascular applications. Each of these systems includes the currently fundamental echocardiography tool sets to acquire and measure 2D, M-mode, spectral and colour flow Doppler registrations.

‘A perfect, distortion-free image quality with superb spatial, contrast and temporal resolution is guaranteed by using latest generation proprietary technologies for manufacturing the transducers and systems,’ the firm points out. ‘Aloka developments, such as hemispheric sound technology (HST) and extended pure harmonic detection (ePHD) for both digital beam-forming and 12-bit signal processing contributes to crisp images in tissue harmonic echo as well as contrast harmonic echo. In addition, the unique, real-time, free angular M-mode (FAM) option means the optimal transducer position can be used to obtain the best possible 2D image and independently choose the best angle for M-mode acquisition of up to 3 cursor lines simultaneous-ly. FAM works both in real-time and from stored B-mode images, saving substantial examination time. Tissue Doppler and stress echo packages can be added to support specific cardiac examinations.

Optional advanced quantitative analysis tools include cardiac quantification (CQ), giving real-time graphical display of global contractility indicators (EF, LV-volume, etc.), kinetic imaging (KI) and automated segmental motion analysis (A-SMA) provide more precise quantification and location data on dysfunctional areas, and allow comparison of these segments with one another.

‘All acquired images and data can be shared and communicated through the available networks using one of the fully DICOM-compatible data management subsystems (DMS). Working with several leading clinical sites worldwide, ALOKA adds that the firm is continuously investigating new or improved ways to assess cardiac function and discover early predictors for a better treatment of cardiac disease.

A computer and image-guided navigation system that presents ‘... finer and more predictable incremental movements than are possible in manual cardiac catheterisation’, has been developed by Siemens Medical Solutions (Medi, and Stereotaxis Inc. (USA). Both firms collaborated on the integration/operation of two systems, which include the Stereotaxis Niobe Magnetic System, to produce the Axiom Artis dFC magnetic navigation (MN) cardiac angiography system.

Using remote control, physicians can work from a control room, thus reducing daily radiation exposure in the cath lab. Catheter navigation is undertaken using 3-D fluoroscopy and magnetic navigation - the flat-panel detector is not sensitive to the magnetic fields. Using previously acquired angiographic images, the cardiologist guides the catheter through the patient’s heart, transmitting navigation impulses to two magnets positioned either side of the patient table to move the magnetic-tipped catheter, which can be rotated 360 degrees.

The first system to be installed in Europe is now operating at the St...
Together, we’ll optimize the quality of care.
Many roads lead to success. Great teamwork, based on a common vision, ranks high among them. That’s why Dräger and Siemens have combined their unique skills in Dräger Medical: a joint venture created to help raise your productivity to new levels. The integration of Siemens’ monitoring systems into Dräger Medical’s CareArea™ Solutions provides you with process-oriented systems that enable seamless information at the acute point of care (APOC) and in transport. Additionally, you will benefit from the integration of APOC information into hospital-wide IT systems. This will not only help you to cut costs by minimizing the time needed to access important information. It will also help you make better decisions that improve therapy performance. Enabling you to attain a standard of clinical excellence that makes a real difference for you and your patients, when and where it counts. Together we’ll multiply the power of innovation for excellence at the acute point of care.

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New disease predictor
High levels of an enzyme called lipoprotein-associated phospholipase A2 (Lp-PLA2) have been shown to increase the risk of cardiac problems. Now a new, FDA-approved blood test, called PLAC, may offer an early warning sign of cardiovascular disease, even if cholesterol levels are normal, by measuring Lp-PLA2 levels during a patient’s risk assessment. ‘Importantly, in some cases, this test identifies patients who do not have other apparent risk factors,’ said Richard E Reitz MD, Medical Director at Quest Diagnostics Nichols Institute, the firm’s testing laboratory and R&D centre. ‘This exciting new marker for cardiovascular risk assessment has the potential to become an integral part of our cardiovascular test offering, providing additional risk assessment information when used with existing risk markers - including low and high-density lipoprotein cholesterol (LDL and HDL), triglycerides, homocysteine and high-sensitivity C-reactive protein.’

The potential clinical value for Lp-PLA2 was first suggested in a Scottish study that focused on individuals at high risk of a heart attack (Ref. New England Journal of Medicine). This suggested that Lp-PLA2 might be used in identifying risk. Then, this April in Chicago, Dr Christie Ballantyne (Director of the Centre for Cardiovascular Disease Prevention at Baylor College of Medicine and DeBakey Heart Centre, Houston) presented results from a study that also indicated that those with normal levels of LDL-cholesterol had more than twice the risk of cardiac attack if the Lp-PLA2 levels were elevated.

The need for novel risk factors is underlined by the fact that 30-50% of those with coronary heart disease show normal LDL levels. ‘By adding Lp-PLA2 to its cardiac risk assessment menu, Quest Diagnostics is making this valuable new test widely available,’ said Dr Ballantyne.

Drug development
The experimental drug Pexelizumab did not meet primary efficacy and mortality endpoints during a Phase III study, reports Alexion Pharmaceuticals - working on this development in partnership with Proctor and Gamble Pharmaceuticals. Whilst the drug failed to meet the joint aim of reducing cardiac attacks and improving survival in patients undergoing coronary artery bypass surgery, it did satisfy secondary endpoints, the firm adds.
IHE (Integrating the Healthcare Enterprise) is a technical framework that provides a common standard for the integration of medical devices and clinical information systems. It enables the secure, efficient, and effective exchange of patient information across healthcare organizations, improving patient care and reducing costs. The IHE framework is based on a set of profiles, each of which describes a specific use case or workflow. These profiles are developed by a committee of experts and are used to guide the implementation of interoperable healthcare systems. In this article, we discuss the IHE framework and its role in the healthcare sector, including the benefits of using IHE-compliant systems and the challenges that must be overcome to fully realize its potential.
nstitutions. The national committees aim to have as many representatives as possible from the healthcare community in order to keep the key working group deals with most preparations, while other members check on any proposals from various national associations (radiologists), representatives from industry and representatives of professional associations (France, GMSIH and SFR). Members from other healthcare organisations, hospital administration departments, federal and regional management, medical federations, IT groups, IT manufacturers associations etc., are also invited, for a broad representation across Europe.

So far, national committees have been established in Germany, France, Great Britain, Italy and Norway, all with different degrees of organisation.

**Promotion**

IHE is based on the voluntary participation of members on committees. There is a lot of support from the medical federations in the USA, and from the EAR, ECR and COCIR in Europe, as well as from the EU through the General Secretariat XIII with IST tenders. Many other organisations also significantly support the IHE process in Europe.

**Connectathon**

Two Connectathons are held annually - the next being in the USA this October followed by the European event in April 2004. At the second European Connectathon - April 2003, in Paris - 33 companies (excluding national subsidiaries) presented 61 systems. Coming from Belgium, Germany, France, Ireland, Italy, The Netherlands, Austria, Sweden, Switzerland, this was a large number representing differences in three national markets (Germany, France, Italy), this was quite a challenge. At the 2003 Connectathon (USA) there were 31 participants, with 30 systems.

In Aachen this spring, 46 companies with 79 systems from over 10 countries took part in the Connectathon.

As explained, the event helps test whether competing systems comply with the specification, and also demonstrates new technology. According to guidelines set out by the national IHE committees, the actors and inter-operability with the systems are planned and the integration profiles are then tested. To ensure conditions are as close to reality as possible, as many systems as possible are connected during these events. Different scenarios from daily hospital life are reconstructed and the data transfer is closely observed. At the end of the Connectathon, scenarios to be shown during national demonstrations are tested. Only systems that comply with the strict guidelines are listed. Successful participation in the Connectathon is a prerequisite for participation in the national demonstration during the following year.

At the large congresses, as previously mentioned, the interoperability of systems is demonstrated to the public. In scenarios close to daily work processes the seamless flow of data from a patient’s hospital admission to registration with separate departments and requests for examinations, planning, archiving, evaluation of results and reporting back of results to the general practitioner is reconstructed and made transparent for the users.

In 2004 two large demonstrations were planned, at the Hospital Expo in Paris, the German Radiology Congress in Wiesbaden, the Italian Radiology Congress in Rimini and the French Radiology Congress in Paris. During these, the organisers constructed virtual hospitals where everything from the admission of a patient to examinations and analysis is possible and screen media could be closely observed.

This year demonstrations were carried out at the Hospital Expo in Paris, the Italian Radiology Congress in Wiesbaden, the Italian Medicine Physicists Meeting in Perugia, the French Radiology Congress in Wiesbaden and the Journée Française Radiologie in Paris.

One example of the current planning for the IHE stand in Wiesbaden is illustrated with the CAD image on these pages. Three virtual hospitals (black, red and gold) are shown, where actual, commercial computer systems demonstrate patient data flow from start to finish. Visitors are led through these hospitals in which the data process is explained with the help of scenarios and the advantages of the IHE systems are made transparent. It is easier to explain the connections and work- ings of the systems if the user has immediate experience during these demonstrations than if only theory is relied upon.

The current layout of the German Radiology Congress integrates two virtual hospitals and a special exhibition where special integration profiles are demonstrated (secure, consistent imaging).

**Outlook**

Although introduced for radiology, the IHE initiative can initiate the entire healthcare system. Additional features for laboratory medicine, cardiology, pathology, ophthalmology and dermatology are included. The IHE system is also likely to be used for outpatient care. The final objective could be the entire management of the healthcare system with access to patient data possible across the board and information available in the right place at the right time while adhering to strict security guidelines.

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**by Daniela Zimmermann of European Hospital**

On the other hand, what our US colleagues do not receive is access to markets, because they did not have any relevant security structures for a long time. As a result, they are receiving more structured safety standards, which we can use and elaborate on in Europe. This marks the direction in which we are working towards international security systems.

**DZ:** Do you see the Americans as still trying to achieve an international IHE? IHE Europe?

**BW:** The fact that the Americans are still working creating an international IHE is interesting. This would be a significant modification of the original IHE concept. Currently, activities focus on the US because the international bureau is located in the USA. As we learn at the international conference in London (June) we talked about bridging between the regional and national association with different sections such as IHE-Europe, IHE-US, and IHE-Asia etc.

**DZ:** I thought an international IHE already exists.

**BW:** Not really. The Technical Committee rules make it clear to which communication should hap- pen. This Committee is situated in the States. Moreover, there are substantial funds available in the States to allow the committee to work and produce documentation.

**DZ:** When then will be applied 1:1 to Europe?

**BW:** Many suggestions come from Europe. The laboratory, for example, only exists in France, and was ‘exported’ from there. It is interesting, by the way, that the French cooperate very closely with the Japanese. These two countries want to challenge the laboratory medicine. That is a big step forward since the Japanese tended to do their own thing. But in lab medicine the Japanese were very open and coop- erative with the French.

The French, Italians and Germans were the first to join IHE, and cooperation with the Norwegians is clearly the most intense and very active at the interest group. The British have their own event at the British radiology conference, but they do indeed participate. They are in the process of developing a glossary, which translates into the French very accurately. The British want to exchange all healthcare partic- ipants in a uniform way. This encompasses inclusion of general physicians’ practices - particularly important in Germany with its two- pronged approach of private practice and physicians in hospi- tals, because that’s where there can be a lot of savings. The British therefore have for the short-term objective to provide an entire hospital with an informa- tion system that consists of many different parts, but where the parts still communicate with each other.

The radiologists have started - we are the furthest ahead.

**DZ:** To reach your objective, comm- prehension of the issues involved must move for beyond radiologists. Is IHE something that hospital managing directors must under- stand?

**BW:** That would be excellent, because he could establish a hospi- tal policy that only IHE compatible instruments should be purchased. I concede we’ve a lot to do there. But don’t forget, laboratory medicine, cardiology and IT are joining the ranks of IHE which means we have four major disciplines in big hospi- tals speaking with one voice. It’s only a question of time till derma- tologists, surgeons etc. follow suit.

**DZ:** Can you outline what the short-term objective is? Is it still a long way off?

**BW:** Maybe not so long. Success stories are very promising. At the radiology conference we presented three European projects - Geneva, Mainz and where IHE has been implemented to a great extent. Not in the entire hospital, I admit, but in crucial departments. And in these hospitals it turned out that IHE could save a lot of money. If we can show managers that inte- gration is cheaper than chaos, we win.

The companies push IHE activi- ties because they understand that interface production with many small outfits costs a lot of time and energy and in the end it doesn’t pay. The service is no longer bearable and therefore the companies are interested in standardised commu- nication equipment - even if IHE needs some investment up front.

The advantages of IHE for users - in the future, the IHE initiative will provide integration statements - that is, a detailed spec sheet for each IHE participant’s product - an integration profile, features etc. If you need to buy new equipment, it is for the laboratory, radiology or cardiology, IT, you can check on our website to find which companies offer what IHE compatible products. The beaut- ility of it all is that you can compile a shopping list and you can see that all the items you selected commu- nicate with each other - plug and play. Presently, if you buy a piece of equipment that you like, there is no guarantee that it will fit in your sys- tem.

**DZ:** Don’t you gain market power with that concept?

**BW:** We are not interested in market power. We want to be work- ers in a company that does something that makes a difference. Quite the contrary, IHE wants to prevent the development of a one-sided market power. We have an entirely independent organisa- tional structure. We want the health- care system to work - as cost-effec- tively as possible. Since everything is becoming increasingly expensive we need to make sure that we have new equipment, or overheads. That means we have to provide hospital managers with the tools to make the right choice. If those managers can go out and buy ‘pre-tater’ prod- ucts (off the shelf) that work and fit, they will be happier than buying expensive ‘haute couture’ stuff which doesn’t fit.
Excerpts from the 6th Symposium on Nursing Careers in Surgery (Lower Saxony) validation for sterilisation

By Joerg Sisolefsky, of Instruclean West, Duisburg, Germany

All stages of cleaning, disinfecting and sterilisation of medical devices must be documented in a comprehensive way. In compliance with DIN EN ISO 14937, validation means that a process exists to cover documentation and interpretation of results needed to prove that a procedure or product consistently comply with predetermined specifications. Thus, during the care of medical devices, validation is a precondition for quality assurance. In Germany, the regulatory framework is as follows:

Social Code (SGBV) § 137: Hospitals are inter alia obliged to participate in quality assurance measures.

Medical Devices Operator Ordinance, (MPBetrVO) §4, 2: Cleaning, disinfection and sterilisation require adequately validated processes.

DIN 58946, Part 6, Operation of large-scale sterilisers in the health care sector:

Further standards:
- DIN EN ISO 14937: Sterilisation of medical devices
- DIN 58946 Part 6: Steam sterilisers
- DIN 58946 Part 13 + 16: Low-temperature steam and formaldehyde (LTSF) sterilisation
- DIN 58948 Part 6: Ethylene oxide sterilisation
- DIN EN ISO 15883: Cleaning/disinfecting (draft)
- DIN EN ISO 554: Validation and routine monitoring for sterilisation with moist heat

Additional current issues under discussion: DRGs, optimisation of workflow, cost cutting and quality care assurance, plus risk management. ‘There are many good concepts for these, but we also need staffing and finance to put them into practice. The most important standard for patient care should be: I would like the patients to have the same care that I would like to receive,’ said Petra Ebbeke, Working group organiser. (Further details: p.ebbeke@t-online.de)

Reprocessing flexible endoscopes/accessories


The recommendation introduces background information analyzing the status of endoscope reprocessing, such as infection risk, micro-organisms involved, prions, sources, causes and transmission of infections. Based on this analysis, objectives and general requirements endoscope and accessories reprocessing were developed (table 1). Checklists provided in the recommendation attachment facilitate implementation. Reprocessing procedures for endoscopic accessories have changed and must be clearly defined in government regulations. Liability becomes a major issue when these procedural descriptions don’t exist, or when instruments are unsuitable for re-processing.

<table>
<thead>
<tr>
<th>Reprocessing procedure</th>
<th>Mechanically</th>
<th>Manually, partially mechanical</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pre-cleaning</td>
<td>Bubble-free</td>
<td>Rinsing with a disinfectant</td>
</tr>
<tr>
<td>Brush-cleaning of channels</td>
<td>Thorough manual cleaning in reprocessing room endoscope</td>
<td>(suitable, disinfected brush to be used for each channel)</td>
</tr>
<tr>
<td>Cleaning rinse</td>
<td>Manually in the reprocessing room</td>
<td>In the CDD-E</td>
</tr>
<tr>
<td>Disinfection</td>
<td>Bubble-free</td>
<td>Rinsing with a disinfectant</td>
</tr>
<tr>
<td>Final rinse</td>
<td>In the reprocessing room</td>
<td>In the CDD-E</td>
</tr>
<tr>
<td>Drying</td>
<td>Manually in the reprocessing room</td>
<td>Using compressed air</td>
</tr>
</tbody>
</table>

Table 1: Overview of different reprocessing procedures for endoscopes (CDD(E) = cleaning/disinfecting devices for endoscopes)

THE DAILY USE OF ORTHOPAEDIC NAVIGATION SYSTEMS

By Heike Klaproth and Dr Frank Gossel, of Klinik im 3 Annastift Hannover e.V.

Navigation systems have been routinely used in orthopaedic and trauma operating theatres for the past two years. Various systems were developed with more emphasis on the technical aspects, rather than practicability in routine operating conditions. Many conflicts occurred due to preparation and sterilisation of specific instruments and the adaptation of these new systems by surgical teams.

We describe the use of orthopaedic navigation systems for knee and spinal column surgery, from the standpoint of a professional surgical team. Apart from general rules for theatre sterility and instrument management at the operating table, expertise in the use of electronic instruments and the organisation of surgical navigational systems in a theatre are essential. Demands made on the nurse who collects and distributes instruments for additional sterile work at the navigation computer transcend what is usually needed in this role and must be clearly defined and practised prior to successful implementation of a navigation system.

The paper contains useful information on re-processing, sterilisation and storage of navigation systems. Manufacturers’ detailed instructions for re-processing must be followed, for their scope is clearly defined in government regulations for medical devices. Liability becomes a major issue when these procedural descriptions don’t exist, or when instruments are unsuitable for re-processing.
Injuries caused by potentially infectious material are still the majority among occupational accidents in hospitals. Infections such as hepatitis B, hepatitis C and HIV dominate - although other infectious diseases also pose a risk, they occur less frequently. Individual cases of skin tuberculosis (TB) after injuries with material containing TBC, e.g. infected lymph nodes, have been recorded. The probability of catching hepatitis B from contaminated material is c. 30% for people who are unprotected. For hepatitis C the figure is 3% and for HIV about 0.3%.

If someone has been injured, bleeding should be induced immediately, to prevent pathogens entering the circulation. The injured area is milked against the blood flow, then disinfected. A mucous antiseptic can be used if there was contact with mucous membrane. In high-risk injuries (e.g. from patients with HIV and high virus load) bleeding can be induced surgically. Generally, if not already done preoperatively, the following parameters should be checked: hepatitis B surface antigen; hepatitis C antibodies; HIV antibodies. Additionally, if there is no known hepatitis B vaccination, hepatitis B antibodies should be measured in the injured person. Checks for these diseases should be repeated routinely after three and six months in order to detect an infection - unless the injured party was vaccinated against hepatitis B and has an antibody titer of >100 UI, or in similarly after an HIV infection. If the antibody is between 10 and 100 UI, a dose of hepatitis B vaccination should be administered immediately, or at least within 24 hours. If the antibody titer is under 10 UI, hepatitis B immunoglobulin (0.06 ml/kg body weight) should be administered. *

Injuries contracted from material that cannot be assigned to a specific patient are considered hepatitis B contamination.

It is impossible to take effective post-exposure measures following hepatitis C contamination. A monthly hepatitis C serology (HCV antibodies) is recommended for six months. Also, when necessary, direct evidence of the virus, via CHV/PCR, should be done, with bi-monthly controls of the transaminases, to enable early detection of hepatitis C virus. By using Interferon early on, over 90% of chronic progress of this disease can be prevented.

If HIV infection of the patient has been shown, Post Exposition Prophylaxis (PEP) should be administered following percutaneous injuries with injection needles, deep injuries with visible bleeding and in superficial injuries with non-intact skin, and a high virus load of the patient. In superficial injuries - with surgical needles or mucous membrane contact, or contact with damaged skin, fluids, and a high virus concentration - the injured person should receive PEP. When there was contact between intact skin or mucous membrane and other fluids - e.g. urine and saliva - HIV/PEP is not recommended. This also holds true for percutaneous contact.

PEPs should be administered immediately after an injury, within the first four hours, or in individual cases up to 72 hours later. The HIV PEP is done with a triple combination of two reverse transcriptase inhibitors and a protease inhibitor. Standard medications are Zidovudin (2 x 250 mg/day), Larnivudin (2 x 150 mg/day) and Idunavir (3 x 800 mg/day). Idunavir must not to be given to pregnant women.

PEPs should be given under a doctor's supervision, with regular blood counts, liver values, creatinine, urine and blood sugar checks throughout a four-week period. When medications used are not approved for PEP, we strongly recommend informing the patient in writing, although, due to the therapy's short duration, serious side effects are rare. Gastrointestinal problems, including fatigue and headaches are relatively frequent. Kidney stones (Idinavir), diabetes mellitus (protease inhibitors), pancreatitis and lactate acidosis are rare side effects with the medications listed above.

*Source: Dr Wolfgang Borchert, Occupational, Internal and Trauma Medicine, Städtisches Klinikum Braunschweig
Aurora2: the elusive gene

Cancer ‘cuts and pastes’ DNA

Breast tissue grown in pigs

New virus and breast cancer

The gene, Aurora2, is over-produced in a significant fraction of breast cancers and uncoupling how it works heralds an important step towards new, targeted breast cancer treatments.

The joint work carried out by experts from the Breakthrough Toby Robins Breast Cancer Research Centre and the University of California San Francisco (UCSF), published in Nature Genetics (August),

Aurora2 has previously been found in 5% of tumours, when compared with over 94% of the most common form of breast cancer, invasive ductal adenocarcinoma. Scientists found that one version of Aurora2 was less able to interact with other genetic signals in the cell, making it more likely that these cells become cancerous. The researchers hope this information can be used to indicate who will or won’t get breast cancer and enable the development of new, more effective treatments for women with a high-risk version of the gene.

Dr Spiros Linardopoulos, Head of Breakthrough’s Novel Drug Targeting Team, said: “Although genes like Aurora2 carry over 94% of the risk of causing breast cancer than well-known, high-risk susceptibility genes such as BRCA1 and 2, they may be a more common cause of cancer in the population.”

Professor Robert Souhami, Director of the Breakthrough Research Centre, was a leading researcher who discovered the BRCA2 gene in 1995.

Caroline Ford, research team leader said, ‘Many people believe breast cancer is purely hereditary, but hereditary breast cancer is estimated to account for only 5% of all cancer cases. So we have little idea about the cause of 19 out of 20 cases. This preliminary research indicates that a virus may be involved. If it can be shown that the virus causes cancer, the possibility of a preventative vaccine is likely. As such, this research will allow a great deal of work to do to get sufficient proof of the role of the virus.’

‘Pub; Journal of Clinical Cancer Research.’ The findings were also presented at Australia’s Fresh Science Forum, during the government sponsored ‘Science Week’.

Breast cancer and HIV

A virus called HHMTV has been found in 40% of women with breast cancer and in 10% of men suffering from breast disease, but in tests carried out on women without the disease, only 2% had the virus, according to a study carried out at Sydney’s University of New South Wales and the Prince of Wales Hospital. The scientists indicate the virus may be the human form of the mammary tumour virus which causes 95% of breast cancer in mice. Further research is needed, but the researchers hope the discovery that a virus may be involved in breast cancer would lead to new treatments.

Dr. Peter Ashworth, director of the Breakthrough Research Centre, was a leading member of the team which discovered the HHMTV in 1999. He added: ‘Understanding more about the genes involved in breast cancer and the biology of the breast and the importance can do to help protect women from breast cancer’

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Cancer ‘cuts and pastes’ DNA

France & England - Breast can-
cer may use similar tools to a word processing computer program to reassemble the components of our body, according to a study (pub-
lished: Genes, Chromosoma-

tes and Cancer) from a team of researchers at the Institut Paoli Calmettes in Marseilles and the Hutchison MRC Research Centre, University of Cambridge, for they have found that the disease ‘cuts and pastes’ genes to create dangerous new combinations of DNA. Called chromosome rearrangement, this is similar to how DNA is cut and pasted when genes are exchanged during the spreading disease.

The scientists tested the immune system of breast cancer patients and found the disease ‘cuts and pastes’ genes to create dangerous new combinations of DNA. Called chromosome rearrangement, this is similar to how DNA is cut and pasted when genes are exchanged during the spreading disease.

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THE CLINICAL PATHWAY

IT companies are working on solutions to streamline case management from a patient’s admission to discharge, which should lead to shorter in-patient stays. Progress in this field is now vital because, under the new DRGs, invoicing will be based on a flat rate for diagnosis rather than on length of stay. Thus hospitals must tighten up treatment/care procedures to optimise time and costs and shorten stays. An agile, rapid, problem-free and efficient treatments should also see an end to queues in x-ray and other departments, as well as cancelled operations.

How can this be achieved to satisfy both medical and business requirements in patient care? A ‘clinical pathway’ concept is increasingly discussed. This involves standardising the process management of complex structures. In hospital terms, it indicates how specific illnesses should be treated, what and where treatments are happening and how much those events cost. An administrative pathway with time requirements, and a medical one, supported by guidelines, are set to determine the future of clinical routine. Inevitably, a pathway must not be so rigid that a doctor cannot leave it if the needs of an individual patient vary from the norm.

In Australia and the USA clinical pathways are already used in some 60% of hospitals. However, the sense and nonsense of pathways is still under discussion in Germany.

Standardisation - the benefits

Complex pathways involved in, say, removing an inflamed gall bladder, or treating one full of stones, must be straightened out. This intervention is poorly standardised. Neither the time sequence with which the patients are processed from admission to discharge, nor surgical procedures are currently uniform in Germany. The multitude of materials used, for example sutures and bandages, demonstrates the absence of a system.

Whoever leaves well-beaten paths to walk on streamlined avenues must leave behind many well-worn rituals. But the departure will be worth it. For example, the surgical team in a Frisian hospital saved two-thirds in laboratory costs by completely implementing process pathways. Previously, 16 post-operative blood examinations per patient were requested; now the average is 1.5, and the routine post-operative blood examinations performed for many years, were recognised as superfluous and abandoned. Discharge dates were also tightened up and the logistics improved to such an extent that the in-patient stay for gallbladder treatment in the surgical ward was reduced from 6.2 to 4.7 days. Shortening stays is a great logistical achievement in an acute care hospital.

However, those who start to introduce patient pathways are not always welcomed. Possibly the biggest hurdle encountered en route to a process-oriented hospital is data transparency - often a taboo subject - and many hospitals still have not embraced an entrepreneurial culture.

Each hospital develops its own patient pathways, and occasionally clinics even create their own software - a cumbersome and very inefficient approach. In some hospitals individual pathways are already used, in the form of electronic data processing, and the next stage for these is the paperless bed with a small handheld computer - which already exists.

IT PRESENTATIONS AT MEDICA 2003

Inevitably, pathways must not be so rigid that a doctor cannot leave it if the needs of an individual patient vary from the norm. In Australia and the USA clinical pathways are already used in some 60% of hospitals. However, the sense and nonsense of pathways is still under discussion in Germany.
Partners, supporters and speakers

The EHFG is a high-level discussion platform for decision makers and stakeholders in public health in Europe. For the sixth year, leading experts and politicians from the entire contin- ent will gather in the Gasteinertal to discuss and propose solutions to the burning issues of healthcare in Europe. Commissioner David Byrne (left) will again be among the Forum’s high profile participants, as will Ulla Schmid, Germany’s Health Minister; Maria Rauch-Kallat, Austrian Minister of Social Affairs; Frank Mandl, Austrian Federal Minister for Health, together with state secretaries and regional presidents, WHO repre- sentatives (e.g. European Regional Director Marc Danzon, European Observatory on Health Protection; European Observatory on Healthcare Systems; Land Salzburg; World Bank, and WHO Regional Office for Europe).

Our ageing populations and their impact on health and social systems is of general concern - and equally so at the European Health Forum Gastein (EHFG), which will focus on this issue, in which questions arise, such as: Does more health mean less wealth? Is more health an economic burden, which destroys wealth? Will older patients receive fewer services? Should we set an age limit for certain medical services and therapies? Should there be more or less pension cuts?

An interview on ‘Round Up’, a German TV programme, sparked the forthcoming EHFG debate. Economics and sociology Professor Friedrich Fritsch (University of Mannheim) and Professor Joachim Wiemeyer (Catholic theology), favoured an age limit for dialysis treatment and heart and lung transplants. Prof. Breyer suggested setting a limit for expensive medical services at 75 years. Prof. Wiemeyer (also a consultant to the German Government) argued that certain health services must be provided above all for the young, and not every life-prolonging measure should be taken for the very old. It is only fair, he concluded, that some expensive medical treatments and therapies - other than acute pain - should not be given to patients beyond a certain age.

That debate caused Dr Gunther Leiner, clinical chief of the Geriatric Unit, in Germany’s achievable concern, for he believes it destroys solidarity and could become an ethical crossroads in Europe. However, the question of health issues in the future, Dr Leiner believes the EHFG, which draws in high-ranking participants, as well as Ulla Schmid, Commissioner of European Commission, science and practitioners - is well suited for an urgently needed ‘Round Table on Ageing and Ethical Issues in Europe’. ‘We must not reach a point where we see the older generation as nothing but a financial burden on a health system that, in itself, is almost unfaultable,’ Dr Leiner pointed out.

Spurring costs: acute care expenses are set to increase, with long-term care costs are quickly increasing.

According to an Institute of Higher Studies report, public health care expenses for acute care will increase from 2000-2050 between 0.7% (Denmark) and 2.3% (Ireland) of GDP, reaching 9.1% of GDP. In Austria, these costs will increase from 0.7% to 1.6% of the GDP, corresponding with the EU-15 average. Due to the demographic structure, the healthcare expense quota will increase by about a third.

In the Member States, France spends most on acute care, followed by Sweden, Ireland and Austria. Where expenses for acute care make up 4.6% of GDP, runs in the lower tier, just ahead of Finland and the UK with 4.6% of GDP.

Healthcare expenditures increase with age

Per capita expenditures in the 85-89 age bracket are five times higher than in the 35-39 age group. Only the youngest and the old are caught up in the phenomenon, but do not conform to the pattern of increasing costs with increasing age.

Studies (e.g. Max-Planck-Institute) show that higher support is needed for chronically ill and long-term intensive therapies than for younger ones who suffer the same illness. US studies confirm this. Lutz et al., of the Health Care Financing Administration, found that older in-patients generate less costs than younger ones. This phenomenon is particularly striking in the above-90 age bracket, for whom therapy costs are about 50% less than for aged 65-69 patients - perhaps explainable due to the fact that cost-benefit analyses already play a signifi- cant role in therapy decisions for very old multisystemic patients. However, it might be equally true that older patients refuse life-pro- longing treatments.

‘We must not settle the crucial cost issue at the expense of the older population’, Dr Leiner said. Instead, he suggested, that national social security systems undergo a thorough review and both savings potential and unnecessary services be identified. This, however, requires a transparent, goal-oriented, patient-centred and knowledge-based debate across political disciplines. Such a debate already exists in some countries and has generated various innovative approaches and models, currently being tested. More sharing and pooling of the financial burden are no longer sacred cows; indeed different models for individual citizen contributions to health insurance or pension have been introduced in most countries. The EHFG wants to explore how this process of learning from each other, of sharing experiences and ideas and best practices (also an issue in the Convention) can be initiated and continued at a European level.

Health - an important economic and employment factor

While public expenditures for healthcare are rising constantly, healthcare is considered the growth sector, in terms of overall economy and employment.

In October the European Health Forum Gastein will take place in Austria. Christian Pruszynski offers a preview and background to planned discussions at this important annual event.

The cost of psychogeriatricpatient care in the community was higher for those who attended a day centre, than for those whose care was overburdened. Gallego et al. (2001) developed a question- naire that evaluates the quality of life of non- professional caregivers of dependent persons.

The burden and well-being of caregivers was assessed by O’Regan et al. (2002). Their finding that perceived social support is strongly related to well-being but unrelated to burden, reinforces the conceptual distinctiveness of the two concepts. This suggests that quality of life of carers could be improved even with burden in their lives and that the overwhelming focus in carer research on burden should be supple- mented with an emphasis on quality of life.

Identifying successful management strategies, Koch et al. (2003) explored experiences by listen- ing to the voices of 15 carers of dementia patients. They suggested that families can be pre- pared for a ‘carrier’ in caring and that early assessment and diagnosis is essential. The Erskintzka Foundation from the Basque Country (Spain) is planning the ‘cuidadores al cuidador’ project (CCP), a programme to support all carers. Its key element - a website - will provide efficien- cy. The basic programme elements are:

- telephone help line
- e-mail help line
- discussion forum
- articles and information
- specialised groups: support groups and learning abilities

The goal of the programme is to improve health and quality of life for carers and families. Public funding will be sought to offer the service free-of-charge.

Economic costs of Alzheimer disease

Studying the costs of Alzheimer disease in Israel, Beery et al. (2002) found that institutionalisation was the major component of social cost. Costs increased with functional and cognitive deterio- ration for the community-dwelling group. With projected increases in the number of persons at risk of developing Alzheimer’s, its economic impact on future costs will be significant. Beery et al suggest efforts to delay deterioration and, as a result, delay institutionalisation - crucial for cost containment.

Woodcock et al (2002) analysed the societal costs of vascular cognitive impairment in older adults. They concluded they are not analysable. In contrast to Alzheimer’s, there is no clear grad- ient relating cost to severity. Unpaid carer costs were the major component of social cost. Costs increased with functional and cognitive deterio- ration. Studying the costs of Alzheimer disease in Israel, Beery et al. (2002) found that institutionalisation was the major component of social cost. Costs increased with functional and cognitive deterio- ration for the community-dwelling group. With projected increases in the number of persons at risk of developing Alzheimer’s, its economic impact on future costs will be significant. Beery et al suggest efforts to delay deterioration and, as a result, delay institutionalisation - crucial for cost containment.

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Travel Warning! Hepatitis A

Warning that hepatitis is rife in the southern Mediterranean region, President of the Turkish-German Health Foundation (Gesessen, Germany), has recommended that all travellers to this country to be vaccinated against hepatitis before they embark on their journey. A recently published study has found that 80% of Turkish families with sex or more children have been infected by hepatitis A. Scientists in Ankara also discovered that 60% of smaller Turkish families, with less than five children, have been affected by hepatitis A, and about half of all Turkish children aged 10 have been infected by the virus. The Hepatitis A virus is transmitted via blood contact and the most common source of infection is the sharing of needles among intravenous drug users. This chronic disease can lead to cirrhosis of the liver and liver cancer after 20 - 40 years.

Food for fertility

A nutrition course for physicians

UK - Roasted red peppers, mini crab cakes and Brazil nuts - good stuff - and they can help to increase fertility, according to Dr Margaret Rayman, (far right) Director of the MSc course in Nutritional Medicine, University of Surrey, who presented a ‘fertility buffet’ at the university in July. ‘Oysters are by far the best source of zinc, but they are not included in this meal, as they are out of season,’ she said, adding: ‘Fatty fish is a very good source of n-3 fatty acids, which are important in the development of the fetus’ brain and vision.’ A balanced diet rich in fruit and vegetables (at least five portions a day) and protein sources such as poultry and fish, is necessary to optimise fertility. Meat is a good source of animal protein and important minerals such as iron and zinc, the latter being especially important for fertility. Alcohol and smoking should be avoided when aiming for conception. This applies to both men and women, as there is evidence that sperm damage through smoking can predispose to cancer in the offspring.

The buffet menu was selected by Vicky Chudleigh, State Registered Dietician at Addenbrookes Hospital, Cambridge. ‘Sunflower, pumpkin & sesame seed bread contains vitamin E, claimed to be an aphrodisiac because of its effects on boosting circulation. It is also an antioxidant and needed for fertility,’ she explained. ‘Brazil nuts and mini crab cakes are both excellent sources of selenium and required for sperm motility. Without adequate selenium, sperm tails kink and break off. Selenium also minimises the risk of miscarriages.’ Roasted red peppers, tomatoes, pesto (containing basil) and of course, chocolate mousse, were all selected for reputed aphrodisiac qualities. Spinach, with other dark green leafy vegetables, provides needed for healthy reproduction and

Tricking the immune system

The chronic course of the hepatitis C virus

The Hepatitis C virus (HCV) is one of the most important causes of infectious inflammation of the liver. Although the acute infection is often not even noticed, 50-80% of those infected develop a chronic disease. A multi-centre, interdisciplinary working group, led by Professor Peter Krammer and Dr Kerstin Herzer of the German Cancer Research Centre, Heidelberg and Dr Christine Falk of the GSF Research Centre for Environment and Health, Neuherberg, has proved, for the first time, how the virus undermines the initially healthy immune system of these patients.

The body possesses NK cells that fight viral infections by detecting cells infected with a virus and killing them. Normally, these natural killer cells are abundant in the human liver. However, the Hepatitis C virus can switch off this first defence of the immune system, said Prof. Krammer. The virus achieves this effect by setting off a cascade of molecular events in a liver cell, which eventually stop the activity of NK cells. In this, the major histocompatibility complex (MHC) class I molecules play a key role. These surface antigens allow the immune system to detect ‘intruders’ and control the activity of the NK cells. The Hepatitis C virus actively intervenes in the complex mechanism of the expression of these antigens and eventually prevents NK cell activity. Thus a virus can escape from the activity of this ‘cell policing’ and multiply undisturbed. This mechanism could be a reason why Hepatitis C infections often take a chronic course despite a functional immune system. ‘We hope to develop specific strategies of prevention based on these findings, such as the development of a vaccine or a specific type of immune therapy,’ Prof. Krammer added.

Around 350,000 people in Germany alone suffer chronic Hepatitis C, whereas infected about 30 million people worldwide. The chronic course of the Hepatitis C virus can lead to cirrhosis of the liver and liver cancer after 20 - 40 years.

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Medipharm Taipeh

Taipei, October 7-10, 2003

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Sexual dysfunction

Sales of medications for male/female sexual dysfunction are rising and expected to grow from the $31.9 billion dollar level reached in 2002, according to a new report, ‘US Sexual Dysfunction Medicines’ published by Frost & Sullivan. Linda Liu, Healthcare analyst at the marketing consultancy Frost & Sullivan, however, reports that this highly competitive field, the manufacturers of these products would be wise to focus on specific patients – whose needs would lead them to choose the manufacturers products above others. (Among leading producers are Pfizer, Lilly, GlaxoSmithKline, Bayer and Procter & Gamble) lead the pharmaceutical field, with small-specialised pharmaceutical companies such as Androgel, Biotrace, Biosante, and Cellegy also competing, (the report adds).

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Congratulations Rostislav and Lucie Kuklak! It was a hot summer wedding for Lucie and Rostislav - a journalist and a technical editor from our EH team worldwide!

... so best wishes for the future from our EH team worldwide!
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Nov. 22: 10 am – 5 pm