Human Factors in Dentistry

Professor Simon Wright
Los Rodeos airport, Tenerife

1. Both aircraft taxi to end of runway 12 with the KLM in front of the Pan Am.

2. KLM aircraft is ordered to the end of runway 30 and to hold position before takeoff.

3. Pan Am aircraft is authorised to follow the KLM aircraft and to leave runway at 3rd exit (C3), as other exits are blocked.

4. Pan Am pilot mistakes exit C4 for C3. KLM aircraft starts takeoff without authorisation.

5. Pan Am aircraft tries to get off the runway but is hit by the KLM.

Pan Am Boeing 747-121
- Crew: 16 (9 dead)
- Passengers: 380 (326 dead)

KLM Boeing 747-206B
- Crew: 14 (all dead)
- Passengers: 234 (all dead)

Total fatalities 583
Human Factors are central to thinking about improving safety – *in aviation*.

- 80% aviation accidents linked to human error.
Human Factors are central to thinking about improving safety – *in medicine*.

- 50% less mortality over 182,409 medical procedures when team had training in human factors.
  - Neil et al. Association between implementation of medical team training program and surgical mortality. JAMA 2010; 5:76
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- Wrong prescriptions: 1:10 junior doctors, 1:20 for consultants.
  - Editorial ‘How to reduce prescribing errors’ *Lancet* 2009; 374: 1945
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- Wrong prescriptions: 1:10 junior doctors, 1:20 for consultants.
  - Editorial ‘How to reduce prescribing errors’ Lancet 2009; 374: 1945
- Literature review 2700 patients per year harmed by wrong site surgery.
  - Collins SJ, Newhouse R, Porter J, Talsma A ‘Effectiveness of the surgical safety checklist in correcting errors; a literature review applying Reason’s Swiss cheese model’ AORN J 2014; 100(1):65-79
# Safety in Anaesthesiology

<table>
<thead>
<tr>
<th>Category</th>
<th>Examples</th>
</tr>
</thead>
<tbody>
<tr>
<td>Equipment/monitoring</td>
<td>• Noninterchangeable oxygen connections</td>
</tr>
<tr>
<td></td>
<td>• Oxygen analyzers</td>
</tr>
<tr>
<td></td>
<td>• Pulse oximetry and capnography</td>
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<td></td>
<td>• Procedures for equipment check</td>
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<tr>
<td></td>
<td>• Ergonomic medical equipment (no more device clutter)</td>
</tr>
<tr>
<td></td>
<td>• Mandatory application of „standard monitoring”</td>
</tr>
<tr>
<td>Medication administration</td>
<td>• Innovations in pharmacotherapy (short acting drugs; nm-reversal agents)</td>
</tr>
<tr>
<td></td>
<td>• Computerized infusion pumps (ICO)</td>
</tr>
<tr>
<td></td>
<td>• Coded drug labeling</td>
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<tr>
<td>Airway management</td>
<td>• Techniques and algorithms for the “difficult airway” (maxillofacial surgery)</td>
</tr>
<tr>
<td>Educational changes</td>
<td>• Practice parameters: Evidence based guidelines, standards</td>
</tr>
<tr>
<td></td>
<td>• Introduction of checklists</td>
</tr>
<tr>
<td></td>
<td>• Decision making, Team training (simulation)</td>
</tr>
<tr>
<td>Performance shaping fact.</td>
<td>• Working hours restriction</td>
</tr>
<tr>
<td>Organizational changes</td>
<td>• 1st to address „Patient safety“ as an independent problem</td>
</tr>
<tr>
<td></td>
<td>• Adoption of systemic view, „systems thinker“ (many, not all)</td>
</tr>
<tr>
<td></td>
<td>• Learning from incidents (IRS)</td>
</tr>
</tbody>
</table>
• Renouard F, Charrier J ‘The search for the weakest link’ Ewenn Publishing 2012
• Bruinsma WE et al ‘How Prevalent are Hazardous Attitudes amongst Orthopeadic Surgeons?’ Clin Orthop Rel Res 2014 Oct 2
Human Factors are central to thinking about improving safety – in dentistry.

- A study of 11074 operations, 23 surgeons, using same protocols had different outcomes.
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- Majority of errors are related to human factors rather than technical ability or inadequate knowledge.
  - Wright S, Croft G Ucer TC, Speechley SD. Errors and adverse events in dentistry: A review” Dental Update 2017 44: 979-982
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  - Wright S, Croft G Ucer TC, Speechley SD. Errors and adverse events in dentistry: A review” Dental Update 2017 44: 979-982
- 61.7% dentists thought smart phones distracted them from clinical duties. 88% used it in the surgery.
  - Wright S, Crofts G, Ucer C Dentist perceptions of Smart Phone use in the surgery *BDJ* volume 225, pages 320–324 (24 August 2018)
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• Whilst the use of a checklist is undisputable as a safety barrier, its value can be limited by failure to use the tool appropriately.

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- Whilst the use of a checklist is undisputable as a safety barrier, its value can be limited by failure to use the tool appropriately.
  - Additional burden
  - Items being skipped
  - Not performing the checks properly or in full
  - Rushing the checklist
  - Allowing interruptions.

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- Items being skipped
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- Rushing the checklist
- Allowing interruptions.

Patient 1

History of present complaint
• Simultaneous implant placement and open sinus lift.
Patient 1

History of present complaint
• Simultaneous implant placement and open sinus lift.
Patient 1

History of present complaint
• Simultaneous implant placement and open sinus lift.
History of present complaint

- Simultaneous implant placement and open sinus lift.

- The Claimant explained that:
  Six month’s following implant treatment she started to get pain from the sinus and the implants, this became gradually worse over the next 12 months. It was also associated with swelling in the mouth and discharge from the nose.
Patient 1

Relevant Medical History
• The patient is smoking about 4 per day.
• The patient is a poorly controlled diabetic
• The patient is allergic to Penicillin.

Relevant Dental History
• Active periodontal disease.
Intra oral examination

3 implants were present in the UL456 sites. These were supporting a bridge. There was increased probing depths around the implants UL56 with bleeding on light probing and pus present. There was an OAC between the UL56.

The oral hygiene was inadequate.
The sinus graft appears mottled, and is not substantial and eroded, this is consistent with an infection of the graft material. Bone loss around the implants.
Diagnosis

- Peri-implantitis.
- Bone loss around the implants.
- OAC.
- Infected graft material.
In my opinion, there is evidence to show that Dr P has breached his duty of care by providing treatment which has fallen below the expected standard of dental care with reference to the treatment planning and surgical placement of the implant fixtures.

Failure to take an accurate history – There is no signed medical history and it would appear that Mr P was unaware that she was a diabetic with a history of poor control. This is a significant risk factor for the proposed treatment.

Failure to explain the risk factors: The patient was unaware that diabetes was a risk factor.

Failure to modify and reassess the risk factors: No attempt was made to refer or treat the periodontal disease, aid in smoking cessation or better control the diabetes. Further more the risks were not reassessed after the initial examination prior to surgery.

Failure to plan and execute a treatment of an acceptable standard in particular relation to:

It is my opinion that the treatment planning options were not fully explored with patient in particular with relation to simultaneous implant placement and sinus augmentation.
In my opinion, there is evidence to show that Dr P has breached his duty of care by providing treatment which has fallen below the expected standard of dental care with reference to the treatment planning and surgical placement of the implant fixtures.

Failure to take an accurate history – There is no signed medical history and it would appear that Mr P was unaware that she was a diabetic with a history of poor control. This is a significant risk factor for the proposed treatment.

Failure to explain the risk factors: The patient was unaware that diabetes was a risk factor.

Failure to modify and reassess the risk factors: No attempt was made to refer or treat the periodontal disease, aid in smoking cessation or better control the diabetes. Furthermore, the risks were not reassessed after the initial examination prior to surgery.

Failure to plan and execute a treatment of an acceptable standard in particular relation to: It is my opinion that the treatment planning options were not fully explored with patient in particular with relation to simultaneous implant placement.
Human Factors are central to thinking about reducing errors – *in dental nursing*.

- 66% prescriptions failed to meet ethical and legal guidelines.

C A Stewart An audit of dental prescriptions between clinics and dental laboratories. BDJ 211 E5 (Aug 2011)
Human Factors are central to thinking about improving safety – in dentistry.

- Perceived number of errors per day 2-4, 1.4% leading to an adverse event.
  - Wright S, Ucer TC, Speechley SD. “The perceived frequency and impact of adverse events in dentistry: The need for further training in human factors Journal of Primary Care Dentistry 2017 9:1 142-146
Heinrich ratio:

Fatal Accident 1

Non-fatal accidents 10

Reportable incidents 30

Errors & Unsafe acts 600
<table>
<thead>
<tr>
<th>Organisation</th>
<th>Total</th>
<th>No harm</th>
<th>Low</th>
<th>Moderate</th>
<th>Severe</th>
<th>Death</th>
<th>Organisation Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>RY7 WIRRAL COMMUNITY NHS FOUNDATION TRUST</td>
<td>446</td>
<td>258</td>
<td>374</td>
<td>204</td>
<td>258</td>
<td>243</td>
<td>372</td>
</tr>
<tr>
<td>RBL WIRRAL UNIVERSITY TEACHING HOSPITAL NHS FOUNDATION TRUST</td>
<td>823</td>
<td>764</td>
<td>630</td>
<td>833</td>
<td>229</td>
<td>1,381</td>
<td>1,137</td>
</tr>
</tbody>
</table>
Enhancing performance through an understanding of the effects of teamwork, tasks, equipment workspace, culture and organisation on human behaviour and abilities, and the application of that knowledge in clinical settings”
Competence vs Performance
<table>
<thead>
<tr>
<th>Fine &amp; Rare</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Bordeaux</strong></td>
<td></td>
</tr>
<tr>
<td>Domaine de Vinsob, Lalande-de-Pomerol 'Special Cru' 1996</td>
<td>$130.00</td>
</tr>
<tr>
<td>Château Talbot, 'Cuvée de Talbot' 2000</td>
<td>$190.00</td>
</tr>
<tr>
<td>Château Pichon Longueville Baron 1996</td>
<td>$155.00</td>
</tr>
<tr>
<td>Château Pichon Longueville Baronne 2001</td>
<td>$175.00</td>
</tr>
<tr>
<td>Château Duhou-Ponsac 1970</td>
<td>$250.00</td>
</tr>
<tr>
<td>Château Ducru-Beaucaillou 1970</td>
<td>$260.00</td>
</tr>
<tr>
<td>Château Montrose 2009</td>
<td>$275.00</td>
</tr>
<tr>
<td>Château Lynch-Bages 1998</td>
<td>$300.00</td>
</tr>
<tr>
<td>Château Canon 1995</td>
<td>$325.00</td>
</tr>
<tr>
<td>Château Château Duhou-Ponsac 1970</td>
<td>$350.00</td>
</tr>
<tr>
<td>Château Lautrec, 'Les Forts de Lautrec' 1896</td>
<td>$475.00</td>
</tr>
<tr>
<td>Château Palmer 1995</td>
<td>$500.00</td>
</tr>
<tr>
<td>Château Latour 1895</td>
<td>$600.00</td>
</tr>
<tr>
<td>Château Larde-Braneac 1er Cru Classé 1995</td>
<td>$550.00</td>
</tr>
<tr>
<td><strong>Burgundy</strong></td>
<td></td>
</tr>
<tr>
<td>Joseph Byn, 'Clos Prieur Bas' Gevrey-Chambertin 2012</td>
<td>$105.00</td>
</tr>
</tbody>
</table>
Diner accidentally served £4,500 red wine after ordering bottle worth £260

Hawksmoor steakhouse tells staff member responsible to keep their ‘chin up’ amid claims tale is ‘cynical publicity stunt’

But a member of staff mistook it for another Bordeaux of the same vintage and accidentally gave them a 2001 bottle of Chateau le Pin Pomerol. The wine was featured on the “rarities” section of the restaurant’s wine list.
Diner accidentally served £4,500 red wine after ordering bottle worth £260

Hawksmoor steakhouse tells staff member responsible to keep their 'chin up' amid claims tale is 'cynical publicity stunt'

Emma Snaith | 6 days ago | 12 comments

Hawksmoor Manchester @HawksmoorMCR · May 16, 2019

To the customer who accidentally got given a bottle of Chateau le Pin Pomerol 2001, which is £4500 on our menu, last night - hope you enjoyed your evening! To the member of staff who accidentally gave it away, chin up! One-off mistakes happen and we love you anyway 😊

But a member of staff mistook it for another Bordeaux of the same vintage and accidentally gave them a 2001 bottle of Chateau le Pin Pomerol. The wine was featured on the “rarities” section of the restaurant’s wine list.
Human Factors

- Errors will happen – no human is infallible.
- Since errors are to be expected – design systems to prevent and absorb them.

- A culture of reporting and supporting.
- Errors are not synonymous with negligence.
ERRORS REDUCE THE SAFETY MARGINS
Most errors don’t lead to complications.
A man who was mistakenly circumcised in a hospital mix-up has been awarded AU$35,000 in compensation.

Terry Brazier, aged 70, went into Leicester Royal Infirmary for a bladder procedure known as a cystoscopy but was mistaken for another patient by hospital staff and circumcised.

The hospital apologised and carried out an investigation, before confirming yesterday it had awarded Brazier a AU$35,000 payout.
Errors in Aviation

Pilots make 10000 errors during their career.

Fly every day for 2700 years before having an accident
Sharing our Errors

- Culture
Sharing our Errors

- Culture
1 - Real professionals don't make errors

2 - The error is not discussed with others

3 - Others remain unaware of the error

4 - Protective barriers are not developed

5 - Errors can easily have serious consequences

6 - The error becomes a violation/fault

Franck Renouard
Significant Barriers

- More Bureaucracy / Red tape
## Significant Barriers

- **Attitude / Behaviour**

### Table 1: Five Hazardous Attitudes/Behaviors

<table>
<thead>
<tr>
<th>Attitude</th>
<th>Characteristics</th>
</tr>
</thead>
<tbody>
<tr>
<td>Impulsiveness</td>
<td>“Quick, quick, quick!” The impulsive practitioner feels the need to do everything quickly. They only think about what they are going to do, and they immediately do the first thing that comes into their head.</td>
</tr>
<tr>
<td>Anti-authority</td>
<td>“Don’t tell me what I have to do.” The practitioner affected by an anti-authority attitude thinks that rules, regulations, and procedures are of no use, or are not designed for them. They think that nobody has the right to tell them how to behave. This attitude is quite common among professions where individuals usually work on their own, such as dentists.</td>
</tr>
<tr>
<td>Invulnerability</td>
<td>“That couldn’t happen to me.” Some people think that accidents only happen to others. This analytical bias affects everyone to some degree but may be particularly marked in certain individuals.</td>
</tr>
<tr>
<td>Macho</td>
<td>“I can do this.” Macho practitioners try to demonstrate their superiority over others. Although this is a predominantly male attitude, it may also affect female surgeons.</td>
</tr>
<tr>
<td>Resignation</td>
<td>“What’s the use…” The practitioner affected by resignation does not believe that their actions make any difference to whether an outcome is a success or a failure. Sometimes this kind of practitioner will give in to unreasonable demands from patients just to be “nice.”</td>
</tr>
</tbody>
</table>
FLYING!! Because

soccer, baseball, football, basketball, golf and tennis only require ONE BALL!!
Significant Barriers

• Majority practices operate as *individual businesses*. 
Significant Barriers

- Fear of punitive action.
- Negative consequences with no positive responses.
Hi Simon,

We will not divulge significant errors even those that are reversible in this legal climate. So in the healthcare setting performing treatment on the cheap with time pressures the outcome is self evident. Can you imagine a lawyer or accountant seeing this number of clients a day. Central to the aviation model to reduce human factor errors are working hours and number of flights carried during a shift are strictly controlled. Dentists in the UK see too many patients a day. Aviation accidents and terrorism produce massive media attention and investment for relatively few deaths. 1800 people are killed on our roads in the UK annually and no one cares!
The UK public are happy for dentists to be too busy so long as the costs are minimal. They would not tolerate this from their hairdressers!

Among western industrialised democracies the UK is unique in the way it provides dentistry using high volume minimal cost model. Change this and we reduce errors.
Significant Barriers

• Fear of punitive action.
• Negative consequences with no positive responses.

• Application of Human Factors to protect patients by reducing errors and their consequences.

• Acknowledging Human Factors as a way of thinking that is incorporated in to processes training and regulation.

• ‘Fair Blame Culture’ supportive of reporting and learning from errors.
• Fear of punitive action.
• Negative consequences with no positive responses.

Application of Human Factors to protect patients by reducing errors and their consequences.

• Acknowledging Human Factors as a way of thinking that is incorporated into processes, training, and regulation.
• ‘Fair Blame Culture’ supportive of reporting and learning from errors.
Significant Barriers

• What to report? Who can report?
Significant Barriers

• What to record? Who can record?
Significant Barriers

- What to record?
Significant Barriers

- What to record?
Significant Barriers

• What to record?
Significant Barriers

• What to record?
Common allegations in relation to implants are:

- Failure to offer an implant as an alternative to destructive bridgework - consent.
- Failure to adequately explain all the available options and the risks – consent again.
- Inadequate number and/or size of implants to support the prosthesis provided.
- Poorly planned and positioned implants making it difficult or impossible to provide a satisfactory restoration or prosthesis.
- Failure to integrate.
- Peri-implantitis and loss of bone due lack of co-ordinated aftercare.
- Damage to adjacent structures, in particular the ID nerve.
- Poor aesthetic result.
Does the incident involve a postgraduate student or trainee?

Yes → Report to the Health Education Scotland. https://www.nes.scot.nhs.uk

No →

Does the incident involve an undergraduate student?

Yes → Report to the Head of School

No →

Does the incident involve side effects of a drug, a medical device, defective medicines, counterfeit or fake medicine or devices, safety concerns regarding e-cigs?

Yes → Report to the MHRA Yellow Card - https://yellowcard.mhra.gov.uk

No →

Does the incident give you concerns about the fitness to practice of a college?

Yes → Report to regulator. If dental - General Dental Council - https://www.gdc-uk.org/patients/raising-a-concern

No →

Does the incident raise safeguarding concerns?

Yes → Report to Safeguarding Lead

No →

Does the incident involve the patient being exposed to excess radiation or faulty x-ray equipment?

Yes → Report to Health and Safety Executive - Radiation Protection Officer

No →

Does the incident involve a criminal matter?

Yes → Report to police and/or counterfraud team.
Never Events

- Entirely Preventable
- Has occurred
- Causes harm
- Clearly defined
Never Events

- Entirely Preventable
- Has occurred
- Causes harm
- Clearly defined

- Wrong site surgery
- Wrong site implant placement
- Retained Foreign Body
A planned referral of a patient, prompted by a clinical suspicion of cancer, is not sent.
Failure to update medical history caused adverse reaction. Extracting the wrong tooth
Prescribing a drug that is known to interact with another medication.
Prescribing a drug to a patient that has previously caused them a severe reaction.
Local anaesthetic injections causing nerve damage.
Damaging intra-oral soft tissues with an overheated handpiece.
Unintentional inhalation or ingestion.
A practice does not have an up-to-date and secure backup of their data.
Medical waste and hazardous substances are discarded in an inappropriate manner.
Emergency medical equipment is not available, maintained or checked regularly.
A needle-stick injury.

Patient safety in dentistry: development of a candidate 'never event' list for primary care
Notifiable Safety Incidents

- Death
- Severe Harm
- Moderate Harm or Prolonged Psychological Harm.
Pilot Study: Reporting

- Dropping implant screw driver in patients’ mouth
- Cut patient lip with impression tray
- Fractured RCT file in tooth
- Extracted LR1 in alginate impression
- Almost removed the wrong tooth, Local Anaesthesia given on wrong side.
- Patient unable to fill in Medical History form properly and they didn’t have their glasses, then did not disclosed type 2 diabetes
- Surgery abandoned due to inability to find surgical guide
- Unable to locate a crown for the patient
- Scan referral received with no patient details – wasted journey for the patient
- Removing UR2 and slipped with luxator.
Human Factors in Healthcare: Patient Safety

- Human Factors in Healthcare 2013
- National Patient Safety Agency
- National and Local Standards for Invasive Procedures
- WHO Human Factors in Patient Safety 2009
- Clinical Human Factors Group (CHFG): http://chfg.org/
- Designing Out Medical Error (DOME): http://www.domeproject.org.uk/
- The Health Foundation: http://www.health.org.uk/
- Institute for Ergonomics and Human Factors: http://iehf.org/
- Patient Safety First: http://www.patientsafetyfirst.nhs.uk/
- Get it right first time NHS
Departmental Publications:

• Department of Health Clinical Human Factors Reference Group Interim Report:
• Never? (Appendix 2, Department of Health Reference Group Interim Report):
• Implementing Human Factors in Healthcare: How to guide (volume 2):
  • http://www.institute.nhs.uk/images/documents/SaferCare/Human-Factors-
• How-to-Guide- v1.2.pdf Getting to grips with Human Factors – a learning resource for Boards:
• NHS England - Serious Incident framework
• Health Innovation Agency
  • Patient Safety Collaborative
  • http://www.innovationagencynwc.nhs.uk/our-work/PatientSafety
• NHS commissioning board 2014 ‘Standardise, Harmonise, Educate’.
Human Factors in Dentistry: Patient Safety

- LocSSIPs
  - Wrong site surgery
  - Wrong Implant
  - Retained Foreign Body
Human Factors in Dentistry: Patient Safety

- LocSSIPs
  - Wrong site surgery
  - Wrong Implant
  - Retained Foreign Body

- CQC, NRLS and StEIS
  - Reporting

Ensure the following:

- Timely reporting and liaison with their commissioning bodies.
- Compliance with reporting and liaison requirements with agencies such as Monitor, the Trust Development Authority, the Care Quality Commission (CQC), Public Health England, the Health and Safety Executive, and coroners. Never Events are clearly defined as serious incidents and therefore, must be reported to the CQC.

6.2 Commissioners of NHS funded care: NHS England

NHS England are committed to ensuring that learning from Never Events is the primary purpose of reporting and investigating them.

NHS England’s role in relation to Never Events is twofold:
Human Factors in Dentistry: Patient Safety

- LocSSIPs
  - Wrong site surgery
  - Wrong Implant
  - Retained Foreign Body
- CQC, NRLS and StEIS
  - Reporting
- Tools
  - Adaption of WHO Checklist
Human Factors in Dentistry: Patient Safety

- LocSSIPs
  - Wrong site surgery
  - Wrong Implant
  - Retained Foreign Body
- CQC, NRLS and StEIS
  - Reporting
- Tools
  - Adaption of WHO Checklist
  - Wales Quality Improvement
Human Factors in Dentistry: Patient Safety

- LocSSIPs
  - Wrong site surgery
  - Wrong Implant
  - Retained Foreign Body
- CQC, NRLS and StEIS
  - Reporting
- Tools
  - Adaption of WHO Checklist
  - Wales Quality Improvement
- Education
  - Manchester Dental School
  - ICE Conference/Study Clubs/PG Studies
  - FD
  - RCS Study Days
  - FGDP Standards ID
Mastery

Application

Awareness

Human Factors Overview – Patient Safety Partnership 2012
Solution

Creating a safety-conscious culture, accepting mistakes will be made, recognising and letting others know about errors, and systematically opting for simple yet effective Human Factor Tools.
Trigger - Human Error

Organisational Factors

Situational Factors

Avoidable incident

Consequence
“There was little recognition from the participants of the value of implementing such a system to address latent conditions that may exist within their working environment”

Dr Jonny Lynd
Solution

Creating a **safety-conscious culture**, accepting mistakes will be made, recognising and letting others know errors, and systematically opting for simple yet effective Human Factor Tools.
Dr x vs GDC
ORDER DATE
20 Sep, 2016

1 item sold by shopping923

NEW NSK S MAX SG-20 Dental Implant Reduction 20:1 Contra Angle Handpiece
(3012222543426)

ITEM PRICE:
£98.00

ORDER TOTAL
£98.00

See description
Remediation

- Full inventory of all equipment
- Handpiece maintenance log.
- Drill sheet records
- Updated the Procurement Policy

Impairment Test
Level of insight
Remediation
Risk of repetition
Dental Risk Survey 2013

GDC Standards

- Put patients’ interest first
- Communicate effectively with patients
- Obtain valid consent
- Maintain and protect patients’ information
- Have a clear and effective complaints procedure
- Work with colleagues in a way that is in the patients’ best interest
- Maintain, develop and work within your professional knowledge and skills
- Raise concerns if patients are at risk
- Make sure your personal behaviour maintains patients’ confidence in you and the dental profession.
Figure 4.4: Top 10 most likely risk factors, perceived by different professional group

Dentists
-...-

Dental hygienists
-...-

Clinical dental technicians
-...-

Dental nurses
-...-
Falsely claiming benefits  4
Pretending to be a man        1
a dental nurse, was summoned to appear before the Professional Conduct Committee on 8 May 2019 for an inquiry into the following charge:

**Charge**

“That being registered as a dental nurse,

1. Between June 2015 and April 2016, you:
   a. messaged Witness A whilst purporting to be man,
   b. telephoned Witness A whilst purporting to be a man,
   c. sent one or more pictures to Witness A whilst purporting to be a man.

2. Your conduct in relation to allegation 1a. and/or 1b. and/or 1c. was:
   a. misleading
   b. dishonest.

3. Around March 2016 you:
   a. amended details on an existing patient record in order to create a false patient record,
   b. sent a video of this false patient record to Witness A,
Falsely claiming benefits 4
Pretending to be a man 1
False references 1
Theft (from work x1) 2
Submitted false observations 1
Ordered and gave antibiotics 1
Indecent photographs 1
Practicing without registration 1
Speeding –then had drugs on her 1
Supplying drugs 2
Assault 1
summoned to appear before the Professional Conduct Committee on 30 August 2017 for an inquiry into the following charge:

**Charge (as amended 30 August 2017)**

“That being a Registered Dental Care Professional:

1. On 2 October 2015, you were convicted at Tameside Magistrates Court for assaulting a person by beating her contrary to Section 39 of the Criminal Justice Act 1988.

2. You failed to inform the General Dental Council that on 2 October 2015, you were convicted of the offence outlined in charge 1 above.

3. Your conduct as set out in charge 2 was misleading, in that you failed to disclose to the General Dental Council that you were convicted of an offence.

4. Your conduct as set out in charge 2 was dishonest, in that you failed to disclose to the General Dental Council that you were convicted of an offence and knew or ought to have known that you were required to disclose.

5. For some or all of the period between 22 September 2016 and 2 December 2016 you failed to adequately co-operate with the investigation into your fitness to practise.
<table>
<thead>
<tr>
<th>Issue</th>
<th>Frequency</th>
</tr>
</thead>
<tbody>
<tr>
<td>Falsely claiming benefits</td>
<td>4</td>
</tr>
<tr>
<td>Pretending to be a man</td>
<td>1</td>
</tr>
<tr>
<td>False references</td>
<td>1</td>
</tr>
<tr>
<td>Theft (from work x1)</td>
<td>2</td>
</tr>
<tr>
<td>Submitted false observations</td>
<td>1</td>
</tr>
<tr>
<td>Ordered and gave antibiotics</td>
<td>1</td>
</tr>
<tr>
<td>Indecent photographs</td>
<td>1</td>
</tr>
<tr>
<td>Practicing without registration</td>
<td>1</td>
</tr>
<tr>
<td>Speeding –then had drugs on her</td>
<td>1</td>
</tr>
<tr>
<td>Supplying drugs</td>
<td>2</td>
</tr>
<tr>
<td>Assault</td>
<td>1</td>
</tr>
<tr>
<td>Tooth whitening (beyond scope)</td>
<td>1</td>
</tr>
<tr>
<td>Hygiene</td>
<td>1</td>
</tr>
</tbody>
</table>
2. Between about 16th November 2012 and September 2013 you failed to maintain adequate infection control for patients at the Practices, in that you:-

(a) re-used matrix bands for the treatment of patients;
(b) did not put on new surgical gloves for each patient;
(c) WITHDRAWN
   i. WITHDRAWN
   ii. WITHDRAWN
(d) re-used endodontic files for the treatment of patients;
used amalgam carriers for the treatment of patients which had not been cleaned in a washer disinfect or sterilised;

(f) used an ultrasonic scaler tip, alternatively ultrasonic scaler tips, for the treatment of patients which had not been cleaned in a washer disinfect or sterilised;

(g) re-used aspirator tips for the treatment of patients when either:
   i. the aspirator tips were designed to be used on a single occasion and then discarded; or
   ii. you knew that the aspirator tips had not been sterilised;

(h) re-used impression trays for the treatment of patients when either:
   i. the impression trays were designed to be used on a single occasion and then discarded; or
   ii. you knew that the impression trays had not been sterilised;

(i) re-used 3:1 tips for the treatment of patients when either:
   i. the 3:1 tips were designed to be used on a single occasion and then discarded; or
   ii. you knew that the 3:1 tips had not been sterilised;
Why do we make errors?
Why do we make errors?

- Stress
- Fatigue
- Time Constraints
“Stress reduces the ability to tap into our pre-fontal cortex, resulting in an inability to analyse the environment and make the appropriate decisions.”
Factors that effect Stress:

- **Advanced Tasks** – Multitasking, time pressures, Immediate decision making.
- **Equipment Problems** – Missing equipment, failure or unfamiliar equipment.
- **Team problems** – Incompetent staff, inexperienced staff, language problems, staff paying no attention to interpersonal issues.
- **Distractions** – Talking, noises, beeps and calls, people walking in and out.
- **Personal factors** – Tiredness, hunger, illness, discomfort

Human Factors are concentrated on two areas for the Dental Nurse:

- Communication between clinical team.
- Clinical team allowing sufficient time.
Time
Anaesthetists admit making an error with fatal results:

Anaesthetists admit making an error with fatal results: 24%
Solution

Creating a safety-conscious culture, accepting mistakes will be made, recognising and letting others know about errors, and systematically opting for simple yet effective Human Factor Tools.
Accept that we are the weakest link!
Threat and Error Management
“Making compromises to please or to avoid displeasing somebody quickly results in surrendering certain principles, which ultimately lead to errors, then complications”
ESSENTIAL COMMUNICATION ONLY
Results
Cognitive workload measures demonstrated high temporal diversity among caregivers in various roles. Eight critical events during cardiopulmonary bypass were then defined. A structured, unambiguous verbal communication protocol for these events was then implemented. Observations of 16 cases before implementation including 29.6 hours of cardiopulmonary bypass with 632 total communication exchanges (average 35.1 exchanges/case) were compared with observations of 16 cases after implementation including 23.9 hours of cardiopulmonary bypass with 748 exchanges (average 46.8 exchanges/case, \( P = .06 \)). Frequency of communication breakdowns per case decreased significantly after implementation (11.5 vs 7.3 breakdowns/case, \( P = .008 \)).

Conclusions
Because of wide variations in cognitive workload among caregivers, effective communication can be structured around critical events rather than defined intervals analogous to the sterile cockpit, with reduction in communication breakdowns.
RECORDS

Make risks obvious
‘What if analysis’ is a tool to analyze the effect of changes in the assumptions of a plan. The future is unpredictable and full of surprises. The best way to deal with this uncertainty is to think about it and prepare an appropriate response.
REDUCE STRESS

Control
Network of colleagues
Work smarter not harder
REPORTING AND LEARNING
Surgical safety is a serious public health issue.

- About 234 million operations are done globally each year.
- 1 million deaths and 7 million disabling complications occur each year worldwide.
Surgical Safety Checklist

Before induction of anaesthesia
(with at least nurse and anaesthesit)

Has the patient confirmed his/her identity, site, procedure, and consent?
  □ Yes
  □ Not applicable

Is the site marked?
  □ Yes
  □ Not applicable

Is the anaesthesia machine and medication check complete?
  □ Yes

Is the pulse oximeter on the patient and functioning?
  □ Yes

Does the patient have a:
  Known allergy?
    □ No
    □ Yes
  Difficult airway or aspiration risk?
    □ No
    □ Yes, and equipment/assistance available
  Risk of >500ml blood loss (7ml/kg in children)?
    □ No
    □ Yes, and two (i)central access and fluids planned

Before skin incision
(with nurse, anaesthetist and surgeon)

□ Confirm all team members have introduced themselves by name and role.

□ Confirm the patient’s name, procedure, and where the incision will be made.

□ Has antibiotic prophylaxis been given within the last 60 minutes?
  □ Yes
  □ Not applicable

Anticipated Critical Events

To Surgeon:
  □ What are the critical or non-routine steps?
  □ How long will the case take?
  □ What is the anticipated blood loss?

To Anaesthetist:
  □ Are there any patient-specific concerns?

To Nursing Team:
  □ Has sterility (including wound closure) been confirmed?
  □ Are there equipment issues or any concerns?

□ Is essential imaging displayed?
  □ Yes
  □ Not applicable

Before patient leaves operating room
(with nurse, anaesthetist and surgeon)

Nurse Verbally Confirms:
  □ The name of the procedure
  □ Completion of instrument, sponge and needle counts
  □ Specimen labelling (and specimen labels placed on, including patient name)
  □ Whether there are any equipment problems to be addressed

To Surgeon, Anaesthetist and Nurse:
  □ What are the key concerns for recovery and management of this patient?

This checklist is not intended to be comprehensive. Additions and modifications to fit local practice are encouraged.
The Checklist was piloted in 8 cities…

- Toronto, Canada
- London, UK
- Amman, Jordan
- Seattle, USA
- Manila, Philippines
- Auckland, NZ
- Ifakara, Tanzania
- New Delhi, India
...and was found to reduce the rate of postoperative complications and death by more than one-third!

Human Factors in Dentistry: Patient Safety

- LocSSIPs
  - Wrong site surgery
  - Wrong Implant
  - Retained Foreign Body
‘The Huddle’


The evolution of patient safety procedures in an oral surgery department.
Graham C¹, Reid S¹, Lord TC¹, Taylor KH¹.
Team Briefing

“THERE IS NO ‘I’ IN TEAM”
ESSENTIALS ONLY
DECREASED AUTHORITY GRADIENT
KEEP IT SIMPLE

To minimise the likelihood of committing errors, we should always try to choose the simplest procedure possible.

Simpler procedure = less stress = improved vigilance.
Factors Affecting the Complexity of Dental Implant Restoration – What is the current evidence and guidance?

S Wright et al BDJ 2016 221:10
# DIGITAL AIDS/ TECHNOLOGY

<table>
<thead>
<tr>
<th>SCANNING</th>
<th>DESIGNING</th>
<th>MILLING</th>
<th>3D PRINTING</th>
</tr>
</thead>
</table>

- [Image of scanning tool]
- [Image of designing software]
- [Image of milling machine]
- [Image of 3D printer]
The very best dental professionals are those who exercise their informed professional judgement precisely so that they don’t find themselves in situations where they have to call on their remarkable skills and talents.
Conclusions:

• 80% of complications are due to human error.

• 100% of success is the result of dental professionals using their remarkable skills as part of an engaged profession.

• Creating a just culture, where we share and learn from our errors is key for a fully engaged profession.
Thank you for your time today.

Professorsimon.wright@nhs.net