Clinical Incidents and Risks in Renal Units

The Renal Association Patient Safety Project

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Summary
The Renal Association has worked with Renal Units, NPSA and MHRA to identify 36 clinical incidents and risks over a 30 month period, and to rapidly formulate and share solutions. This has been achieved by a consultant renal physician leading the project and by email circulation to renal unit clinical directors and lead nurses. Failure of dialysis techniques and equipment usage is the greatest risk for patient safety and emphasises the importance of training. Incidents can stimulate development of new national guidelines. The methodology of this project could be utilised by any other medical or surgical speciality, particularly those involving equipment usage.

Background
10% of patients in hospital experience suffer from some type of patient safety incident, of which up to half are preventable
60% of incidents are related to equipment as a result of failure of usage
Patient Safety is an NHS priority
Since June 2008 the Renal Association has been working with renal units, NPSA and MHRA to identify and learn from incidents and risks
A consultant lead was identified (PBR), and so far no funding has been required

Methods
NPSA data on renal incidents from the National Reporting and Learning System (NRLS) database has been analysed
Incidents and risk-prone situations have been circulated by email to renal unit clinical directors and lead nurses, together with solutions
National surveys have been undertaken of –
- Risk prone situations
- Dialysis needle dislodgments
- Renal unit water supplies

Results
Analyses of NPSA data
It is estimated that approximately 725 incidents/year occur in renal units in England and Wales, resulting in:
- Death or potential death (n=55)
- Severe harm (n=120)
- Moderate harm (n=550)
- This suggests, on average, at least 10 serious incidents with one death per renal unit/year

Incidents and risks (Figure 1)
Over a 30 month period, 31 incidents and 5 risks were identified from
- Renal units (42%)
- NPSA (28%)
- MHRA (30%)
Those were circulated to renal units, of which 17 incidents and risks were circulated as NPSA or MHRA alerts
The largest number of incidents (36%) were due to failure of dialysis techniques or machine usage.
Other incidents were as a result of –
- Failure of dialysis machines (19%)
- Failure of dialysis equipment or disposables (22%)
- Medication incidents (19%) (n = 11)

Risk prone situations
included catheter - associated infections, practical procedures, prescribing errors, lack of experienced staff

Causes of incidents / risks
- Failure of dialysis technique or machine usage (36%)
- Failure of dialysis machines (19%)
- Failure of dialysis equipment or disposables (22%)
- Medication incidents (19%)

Conclusions
This Patient Safety project has facilitated rapid sharing of incidents and solutions.
Renal units may have 10 or more life threatening incidents/year
Under reporting undoubtedly underestimates the incidence of incidents
Failure of dialysis techniques and equipment usage is the greatest risk for patient safety and emphasises the importance of training
Incidents can stimulate development of new national guidelines
Guidelines for hospital and renal unit water supplies are being developed

Acknowledgments
Thanks to: Renal Unit doctors, nurses and technologists for sharing and responding to clinical incidents circulated
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Figure 1
Renal Association Patient Safety Project

June 08 – Dec 10 (30 months)
31 incidents + 5 risks

Renal Units
42%

NPSA
28%

MHRA
30%

NPSA & MHRA alerts (n = 17)

Patient Safety Project Lead (PBR)

Causes of incidents / risks
Failure of dialysis technique or machine usage (36%)
Failure of dialysis machines (19%)
Failure of dialysis equipment or disposables (22%)
Medication incidents (19%)

Figure 2

Figure 3

Renal unit water supplies
Incidents of haemolysis on haemodialysis due to water sterilisation by inadvertent exposure to hydrogen peroxide or chloramine, including 1 death, has lead to a national survey which showed:
- Only a quarter of renal units have a direct feed from Water company mains (Figure 2).
- Half of renal unit plants are over 10 years old (Figure 3).

- Very poor or no communication between estates departments and renal units
- No consensus of sterilisation protocols

A working party has been set up to develop new national guidelines for hospital and renal units water supplies and water testing.

Dialysis needle dislodgments
Although one death had occurred, needle dislodgment only occurred in 1:100,000 haemodialysis sessions. Guidelines to prevent further episodes have been circulated.
A report on a blood loss detector has been produced in conjunction with the Centre for Evidence-based Prescribing (CEP), which concluded detectors could be used for high-risk patients but would not be cost-effective for routine use
Reports and guidelines
11 national safety reports and guidelines have been circulated

Conclusions

Reports and guidelines
11 National Safety Reports and guidelines have been circulated

31 incidents + 5 risks

Renal Units
42%

Shared experience
+ solutions

Renal Unit Lead Nurses

Patient Safety Project Lead (PBR)

National Safety Reports + Guidelines (n = 11)