

# How clikJaundice differs from other TcBs

## Low cost

Technology makes 'Pay per baby for 1 month' affordable to hospitals, Doctors & to parents.

## Reliability of technique used in other devices

There have been several attempts at producing TcB devices (Yamanouchi et al 1980, Yasuda et al 2003, Tayba et al 1998, Rubaltelli et al 2001, Luca et al 2008, Bertini et al 2008), but questions regarding the reliability etc. of such devices remain. Examples of such devices are the Bilicare device (Pratesi et al 2015) which uses a LED source to measure the ratio of the light intensity before and after transmission through a neonate's ear lobe. The Minolta – 130 Pratesi et al 2015) uses a Xenon lamp and measures the green and blue light components reflected from a neonate's forehead via two optical paths. A Biliscan device (Biliscan n.d.) and (KJ-8000 n.d.) uses a LED and Xenon lamp for obtaining the ratio of the blue and green components of light reflected from the skin. Bosschart et al have used a tungsten halogen source with a multi-fibre probe and imaging with a spectrograph and CCD camera. More recently de Greef et al have used a Bilicam system (de Greef et al 2014) based upon a smartphone camera for obtaining an image of a neonate's torso plus a colour chart in ambient light.

## clikJaundice performance improved by extended form of chromatic analysis

Possible performance improvements which are needed (de Greef et al 2014, Bosschaart et al 2012), using polychromatic light are addressed in clikjaundice through the use of a mobile phone based system in combination with chromatic analysis techniques. Unlike the Bilicam approach, the present method uses LED illumination within a specially designed shroud carrying a calibration / camera adjustment template with a central transparent window through which a particular area of a neonate's tissue is observed and is deliberately occluded. Information from the captured image is extracted using an extended form of chromatic analysis to that used for camera based monitoring of various complex liquids such as infected urine (Deakin et al 2014), alcoholic liquor (Jones et al 2009a) and electric power transformer oils (Elzagzoug et al 2014, Lo et al 2017).

## Sensitivity, Specificity- comparison with other devices

| Source                   | Sensitivity | Specificity | PPV         | NPV         |
|--------------------------|-------------|-------------|-------------|-------------|
| 1. (Pratesi et al 2015)  |             |             |             |             |
| (a) Bilicare             | 0.95        | 0.4         | 0.82        | 0.73        |
| (b) Minolta JM-103       | 0.89        | 0.76        | 0.88        | 0.71        |
| 2. (de Greef et al 2014) |             |             |             |             |
| (a) Bilicam (phone)      | 0.85        | 0.82        | 0.9         | 0.79        |
| 3. klikJaundice          | <b>0.97</b> | <b>0.82</b> | <b>0.95</b> | <b>0.90</b> |