



Medicine for Managers

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APGAR

Every baby born in a modern hospital anywhere in the world is first reviewed using a simple assessment first formulated by Dr Virginia Apgar. The simple review of the new-born using the Apgar score has been standard practice since the late 1950s, has reduced infant mortality and is one of the basic principles of neonatology.



Virginia Apgar was born in New Jersey, USA in 1909. She studied medicine at Columbia University in 1929, completing her MD in 1933.

At the time women were few and far between in medicine. She initially worked in anaesthetics which was an emerging speciality at that time. Her development was rapid and in 1938 she

became Director of Anaesthesia at the newly created division of anaesthetics in the department of surgery at the Presbyterian Hospital.

When Anaesthetics became a department in its own right, she was passed over as Chair, in favour of a male colleague.

She continued in anaesthetics but became increasingly interested in obstetric complications and birth defects.

By the late 1950s, Dr Apgar had attended over 17,000 births. She became

increasingly involved in identifying birth defects and how they might be reduced. She realised that there was no standard way to assess the health of new infants. In 1953 she published a test based on five new-born infant features.

They were Skin Colour, Pulse Rate, Response to Stimulation (irritability), Muscle Tone and Respiratory Effort. Each feature was scored 0, 1 or 2. The score is essential and is a measure of condition and a predictor of progress and resuscitation when required.

The score is measured at 1, 5 and if required at 10 minutes after delivery.

Dr Apgar became head of the newly created Division of Congenital Malformations at Johns Hopkins Hospital in 1959.

She worked prodigiously publishing dozens of articles about infant mortality, resuscitation and defects. She had progressive liver disease in her later years and died in 1974 at the age of 65.

Some ten years after the initial publication of the five factors identified by Apgar, an acronym (or backronym) was coined in the United States as a mnemonic learning aid.

The signs to be identified were renamed as:

Appearance (skin colour)

Pulse (heart rate)

Grimace (reflex irritability)

Activity (muscle tone)

Respiration.

Thus the five signs, measured and reassessed to establish the health of the infant became **APGAR** and the score became the '**Apgar Score**'.

The signs are scored according to assessed criteria:

Appearance (skin colour) scored

1. Bluish-Gray or pale all over
2. Normal colour; hands/feet bluish
3. Normal pink colour all over

Pulse

1. No pulse
2. Below 100 beats/minute
3. Above 100 beats/minute

Grimace (reflex irritability)

1. Absent (no response)
2. Facial movement with stimulation
3. Pulls away, coughs, or cries with stimulation

Activity (muscle tone)

1. Floppy. No tone
2. Arms/legs little movement
3. Active spontaneous movement

Respiration

1. No breathing
2. Slow, irregular breathing, weak cry
3. Normal rate, good cry

The score provided a quick reproducible assessment of the condition of the baby, a quick assessment of the success of any treatment and the indicator, when necessary for ongoing treatment.

During her lifetime, she was dubbed the woman who saved countless babies.

After her death an obituary summed up her contribution with the accolade that "every baby is first seen through the eyes of Virginia Apgar.

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