Optimising Virtual Patient Assessment

Obtaining clinical information remotely

Despite the limitations of the virtual physical examination compared with traditional in-person evaluations, it is still possible to capture valuable clinical information through a combination of sources. These include:

- Patient-assisted physical assessment
- Range of motion tests
- Close-up camera views on video
- Data from medical applications, wearables for heart rate and electrocardiogram, and remote monitoring devices (scale, blood pressure cuff, and pulse oximeter)

Physicians should guide their patients through taking accurate measurements before and during the virtual physical examination, asking a series of targeted questions about each system of the body. Data obtained from measuring devices may be displayed via the monitor during the visit or uploaded by the patient onto their chart prior to the visit.

The virtual physical examination enlists the patient to become involved with their own health evaluation and may help their understanding of their body.

GENERAL CHECKLIST FOR A PATIENT-ASSISTED VIRTUAL PHYSICAL EXAMINATION

Parameter	Recommended patient actions	Recommended physician actions
Vital signs	• Self-weigh in the morning • Take basal BP and heart rate twice, stand, and then after 1	• Check weight, blood pressure, pulse, oxygen saturation, and temperature

	minute, take a standing BP and heart rate • ***Useful equipment:*** Electronic scale, digital, upper-arm blood pressure cuff	
Skin	• Self-assess the skin and identify any new bruises, rashes, lacerations, psoriasis plaques, or swelling • Examine face, neck, arms, elbows, chest, abdomen, and legs • ***Useful equipment:*** high resolution smartphone camera	• Have the patient show you what they have observed about their skin • If there is a trusted person with them, ask them to show you their back
Head, eyes, ears, nose and throat	• Close eyes • Look up to the ceiling. Stretch out the neck • ***Useful equipment:*** Smartphone camera to capture ocular motion (eg, retinal cameras) and speakers to measure hearing	• Check for changes in vision, hearing, or smell • Check whether pupils are symmetrical or constricted • Assess the sclera and evaluate for icterus. Note any ptosis
Neck	• Look over right shoulder and then look over left shoulder • Inhale • Swallow • ***Useful equipment:*** high resolution smartphone camera	• Observe range of rotation, check for pain or limitation with motion • Observe the neck veins while sitting and inhaling • Check for pain while swallowing
Lungs	• Deeply inhale and exhale through an open mouth	• Listen for cough or wheezes • Look for nasal flaring

	• Deeply inhale and hold breath for 10 seconds • ***Useful equipment:*** peak flow meters, smartphone applications for peak flow recordings	• Watch for tachypnoea and signs of impaired respiration
Heart	• Take pulse at the wrist • Count out the beats, noting any skips, pauses, or irregularities • ***Useful equipment:*** pulse oximeter, Apple Watch with heart rates and electrocardiogram monitoring or AliveCor from Kardia.	• Assess pulse rate • Check for irregularity in heart rhythm • Look for signs of tachycardia
Abdomen	• Palpate the abdomen and note any tenderness or distension • ***Useful equipment:*** smartphone application with integrated sensors	• Ask patients if their abdomen is soft, nontender, and normal in size • Ask if any abdominal scars are present and what they were from
Extremities	• Feel lower legs and ankles and use the thumb to press into the pre-tibial area • Put hands around the calves and say whether one calf is more swollen than the other • Feel the Achilles tendon and see if it feels lumpy or bigger than a thumb • Measure the calves a fixed distance up from the ankle	• Confirm impression of lower leg swelling, especially if one leg is more swollen • Determine presence of pitting oedema • Ask if patient's hands or feet are colder than usual, or just the fingertips and toes • Ask questions about cold sensitivity and colour changes • Check for signs of familial hypercholesterolaemia

Neurologic	• Hold arms out with elbows straight, spread fingers, and turn hands up as if catching rain • Rise up from a seated position with arms folded across chest • Walk to the door and back	• Assess speech, gait, and stance • Look for unilateral and proximal muscle weakness. • Ask patients if they have noticed a tremor or if one arm is weaker than the other • Check for light-headedness when rising
Social	• Show the home environment and immediate surroundings (eg, living room and refrigerator) • ***Useful equipment:*** high resolution smartphone camera	• Inquire about issues regarding changes in diet, physical activity, sleep, stress, and social support. • Ask about insecurities related to food, medicines, and supplies • Observe patient surroundings and interactions with caregivers • Assess patient mood and facial expressions during the visit

References

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